AMERICAN JOURNAL OF ORTHODONTICS

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THE AMERICAN ASSOCIATION OF ORTHODONTISTS,
ITS COMPONENT SOCIETIES, AND
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VOL. 36 **FEBRUARY, 1950** **No. 2**

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AND INSTRUMENTS

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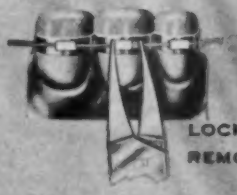
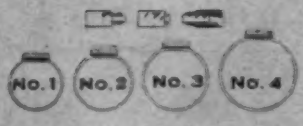


LOCK SEATING AND REMOVING PLIERS

LOCK PLACING PLIERS



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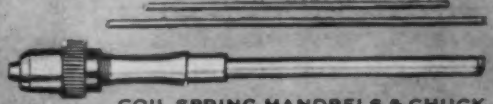
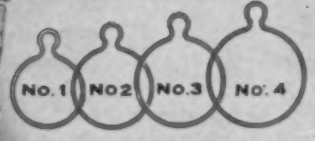


COIL SPRING MANDRELS & CHUCK



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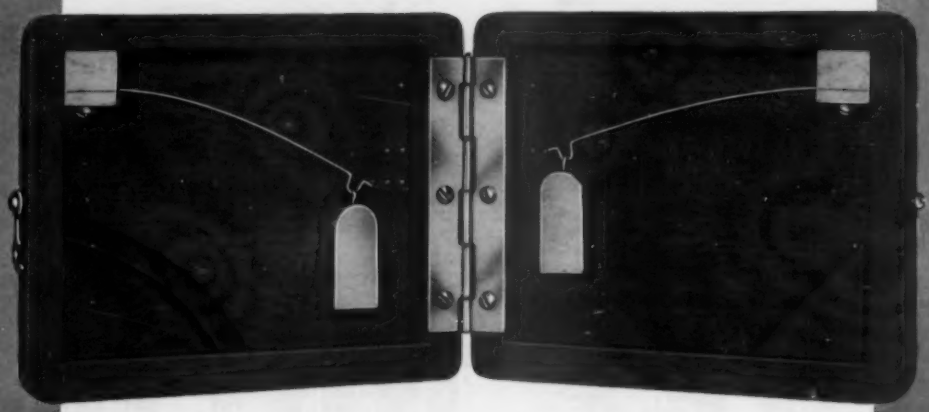

Shown above are two typical orthodontic spring wires — on the left a gold alloy and on the right a chrome material. Both pieces are the same length and the same gauge. When identical weights are attached to the free ends of each piece of wire the gold alloy is deflected almost *twice as far* as the other. Obviously it is twice as flexible.

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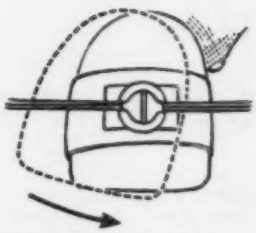

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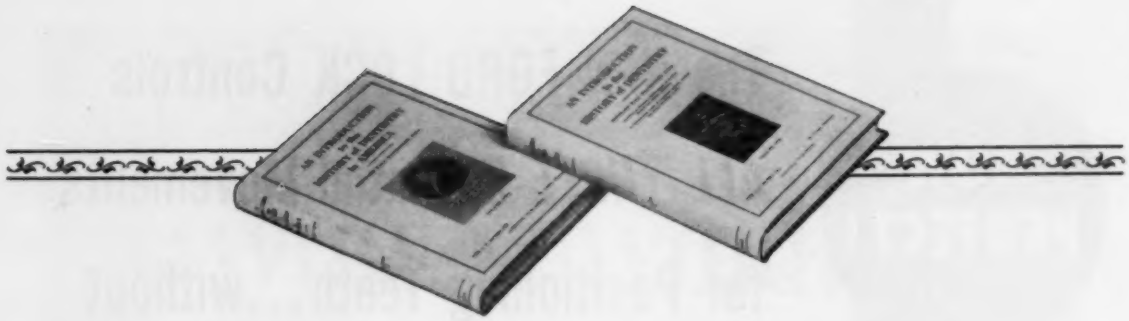

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Max E. Ernst, President, American Association of Orthodontists
1949—1950

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VOL. 36 FEBRUARY, 1950 NO. 2

Original Articles

PRESIDENT'S ADDRESS

SOUTHERN SOCIETY OF ORTHODONTISTS

SAMUEL D. GORE, D.D.S., NEW ORLEANS, LA.

IT IS my privilege to welcome you to the twenty-fifth annual meeting of the Southern Society of Orthodontists. As you have noticed in your program, this is not our twenty-fifth anniversary, but your Board felt it should be designated as our Silver Anniversary Meeting since it is the twenty-fifth meeting of our society.

It was with great forethought and interest in our profession that the founders of our society met in Atlanta, Georgia, on Feb. 23, 1921, for the purpose of forming our organization. We should feel justly proud of these men and those following, who have worked so hard to advance our profession. In looking over the accomplishments and contributions to orthodontics we again should be very proud of our Southern Society members.

The following men were at the original meeting and are charter members: Drs. C. C. Howard, J. A. Gorman, Oren A. Oliver, W. B. Childs, Carroll C. Johnson, Thomas T. Moore, Jr., Donald Morrison, Thad Morrison, Harle C. Parks, and William C. Fisher. Dr. Fisher was made an honorary charter member since his residence was in New York. Some of these men have passed on, but I would like those in attendance to stand for a moment. It is due to the efforts of men like these that our society has risen to take its place among the health professions of our great nation.

It is my duty to review some of the activities of our society and to make recommendations which may add to its smooth functioning. You will hear the reports of the several committees as to what has been accomplished during the past year. The excellent work of the men on these committees makes it possible for your society to continue its progress.

Presented at the meeting of the Southern Society of Orthodontists, New Orleans, La., Oct. 30 to Nov. 1, 1949.

At the last meeting of the American Association of Orthodontists, in New York, President Lowrie Porter recommended changes for requirements for membership to the Association. These were later presented at the meeting of the A.A.O. by the Constitution and Bylaws Committee and will be voted on at the next meeting. If these proposed changes are voted favorably, it will establish uniform requirements for membership in all the sectional societies.

We have in our society an associate membership, but that is not true of all sectional societies. The proposed changes would create such a membership in all sections, and the following is an approximate summary of the requirements:

1. One calendar year of full-time university graduate or postgraduate orthodontic training, recommendation by the head of orthodontic department, or

2. One full calendar year of full-time association with an active member of the A.A.O., recommendation to be made by preceptor, or

3. An equivalent of the above two. The equivalent may include orthodontic training from informal courses, preceptorships, or seminars which may satisfy unanimously the membership committee that he is a qualified practitioner, recommendations by two A.A.O. members, or

4. Two years' full-time specialization including orthodontic training from informal courses, preceptorships, or seminars which may satisfy the entire membership committee that he is a qualified practitioner, recommendation by two A.A.O. members.

The associate membership is to be established as a probationary class and should be limited to a period of five years, during which time an associate member should be able to qualify for active membership in the constituent society, which would automatically make him an active member of the A.A.O. Upon accepting associate membership he must agree that if he does not qualify in five years, he will automatically be dropped from membership in his sectional society.

Proposal for active membership in the A.A.O. and sectional society is as follows:

After one year of associate membership in his constituent society an applicant will be eligible to apply for active membership if he has had:

1. Three years of specialization including one calendar year of full-time graduate or postgraduate university orthodontic training, recommendation by two active members of the A.A.O., or

2. Three years of specialization, including two full-time years of preceptorship with an active member of the A.A.O., or an equivalent suitable to the membership committee, recommendation by two active members of the A.A.O., or

3. Four years of specialization including informal training in preceptorship, suitable short courses, or seminars which satisfy the entire membership committee that he is a qualified practitioner, recommendation by two active members of the A.A.O.

No application for active membership should be considered if applicant has had no form of special training in preparation for specialization.

I recommend these changes and urge your support when you are called upon for your ballot. I feel these changes would greatly benefit our profession and our future members would be well-qualified practitioners. They are not too stringent, and if a man is to practice orthodontics as a life's work, he should want to equip himself to the extent of the proposed changes.

If these changes pass the A.A.O., our Constitution and Bylaws Committee should have prepared suitable resolutions to present at the first session of our next meeting so they could be adopted at the same meeting without waiting a year. This could be done by unanimous consent. In our present printed copy of our Constitutional and Administrative Bylaws there is an associate membership listed in Article III of the Constitution but there is no provision made for this membership under Article I of the Administrative Bylaws which provides for other forms of memberships. Therefore, if the proposed changes of the A.A.O. are defeated, our Constitution and Bylaws Committee should prepare suitable resolutions to correct this condition. If the changes do pass, it could all be done at the same time as there will be some revision necessary anyway.

There is another subject which I want to bring to your attention and that is the condition existing in the publication of our JOURNAL. In a letter to me of Sept. 7, 1949, from Dr. Joseph Eby, he stated, "The main thing I am writing you about is a really serious matter. We are going to have to face the fact that before much longer, there will have to be a change in the Journal situation as it pertains to the Mosby Company and the A.A.O. Last year the Board of Directors passed a rule that any costs of illustrations above $50.00 would have to be financed or handled by the Sectional Societies." Dr. Eby is Chairman of the Editorial and Publication Board of the A.A.O., and he enclosed a copy of their report presented to the A.A.O. at the last meeting. From the report it is shown that the A.A.O. has a contract with the Mosby Company in which the Mosby Company spends a definite amount for illustrations. Last year the cost of illustrations exceeded the amount by $617, which the A.A.O. was called on to pay. With the increased cost of illustrations, the cost of publication may greatly exceed the amount of the contract unless the number of illustrations per article is reduced.

I do not believe any one has the answer to the problem, but it may be helped some by letting our members know about the situation. Since the ruling of the Board of Directors that illustration costs above $50 per article must be handled by the essayist or sectional society from which the article comes, our members should take this into consideration when preparing an article for publication. The report further stated that the Northeastern Society has for the past two years agreed to underwrite $500 toward cost of illustrations in publications originating in that section. It further suggests that if each section would contribute $1.00 per year for each member, from its treasury, it probably would be sufficient to meet the needs.

I am not making any definite recommendations on this subject, but felt you should be informed of it. In my opinion, the future Board should reach some conclusions with the A.A.O. on this subject.

I would be remiss in my duties if, at this time, I did not express my appreciation for the help extended by your officers and committees during the past year. At no time have I called on any one of them but what their response was immediate. It has been a pleasure to work with them. Your Program Committee has done an excellent job of arranging a meeting for you from which you will gain much knowledge. The Local Arrangements Committee has planned your meeting while here and is ready to be of service to you.

I also want to thank our essayists and clinicians for appearing on our program. I am sure being here to address us has meant sacrifice in time and expense to them, and we appreciate their contributions to our meeting.

And now I want to express my appreciation to you for your confidence in bestowing on me the highest honor of our society. This is an honor which I shall always cherish, and it has been a privilege to serve you.

1237 Maison Blanche Building.

OFFICE ROUTINES*

Part I. Standardizing Office Paper Work

Brooks Bell, D.D.S., Dallas, Texas

THE material presented in this part of my paper has been compiled through a good many years of trial and error. Some of the ideas contained herein are original; some have been incorporated from other practices. It has been found that by making office paper work routine, overlooking, or simply not doing, many of the fundamentals of building and maintaining a successful practice is avoided.

First, a patient will be carried completely through the office from the time of the first appointment until dismissal.

When a phone call comes in for an appointment, the secretary fills out the white card shown in Fig. 1, filling in only the patient's name and the parent's telephone number and address, and a definite appointment is given. When the patient arrives for the appointment, the assistant takes him to a treatment room and completes filling out the white card—who referred him, age, birth date, etc. The assistant places the card on my desk and I go in to see the patient.

All particulars of this first visit, such as malformations and x-rays that are required, are noted on this white card. On the front of the card is a definite notation as to when the patient is to be seen again; for instance, if x-rays have been recommended and no definite appointment is given, a notation is made for the secretary to contact that patient on the same date the next month to see if the x-rays have been made and if we can give him an appointment; or the notation may be for a check-up several months in the future. This notation is recorded in a monthly cross-card file and the patient contacted that particular month. In the upper left-hand corner of the card is indicated the type of "thank you letter" to be sent to the person referring the case. This thank you letter, which will be discussed later, is usually written the same day the patient is seen.

At the time of the second visit, a complete diagnosis is made and financial arrangements discussed. In discussing finances the word "fee" is not mentioned for this term is widely misused. Definitions of "fee" range from, "to tip as a waiter, to hire, or to bribe, a payment for professional services, or a charge for special privilege." "Fee" should be eliminated from orthodontic terminology and the word "cost" used. Say, "The cost of treatment will be $_____ a year, which you can pay $_____ quarterly, or in twelve equal payments of $_____." Do not say, "$_____ a month," which gives the idea that a

Presented at the meeting of the Southern Society of Orthodontists, New Orleans, La., Oct. 30 to Nov. 1, 1949.

*All names of patients used in this article are fictitious.

couple of months' absence during the summer deducts the $_____ due during this absence. Then say, "There is also an initial cost of $_____, payable when treatment is started; this makes the cost of the first year's treatment $_____

1A

File No. 8816 Model No. 40 11

Name Robbins, Mary Age 11 Birth 12-11-38

Address 4726 Kelsey Road Phone 66-2947

Parents Mr. and Mrs. Robert L. Robbins Business Attorney

Address 206 Gulf States Building Phone C-2231

Initial Cost # Yearly Cost #

Est. Time 2½-3 yrs. X-rays FM-BW-8-1-49
Lat Jaw 8-1-49 Dr. W. L. Reeves

Remarks:

8-20-49
If it's made

Referred by Dr. W. L. Reeves Date 7-20-49

7-20-49 II - no room for 3/3
- rec FM 4

8-5-49

Date ~~Called~~ or in Book 7-18-49 Date Report Checked June 1949

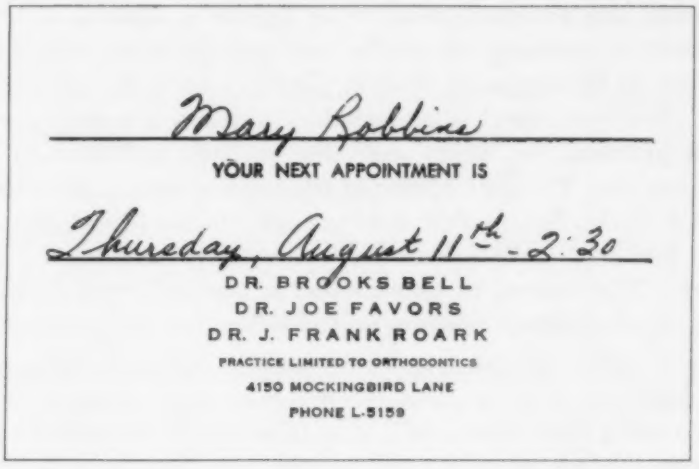
Occupation Attorney Salary refused

Accounts Satisfactory

Fig. 1.

and $_____ for each year of treatment thereafter." Stop a moment and then say, "Is this financial arrangement satisfactory with you?" (This is the time for a definite financial agreement.)

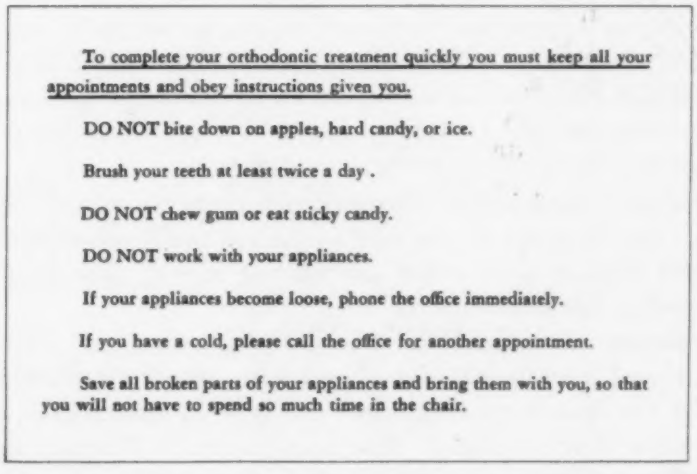
If the patient starts treatment, each operation is noted on the treatment card; this card will be explained later. At this time the fact that the youngster will have to come in during school hours for some of the appointments is carefully explained to the parent. It will be found that there is no objection to the youngster coming in to the office during school hours if the appointments are


Mary Robbins

YOUR NEXT APPOINTMENT IS

Thursday, August 11th - 2:30

DR. BROOKS BELL
DR. JOE FAVORS
DR. J. FRANK ROARK
PRACTICE LIMITED TO ORTHODONTICS
4150 MOCKINGBIRD LANE
PHONE L-5159


To complete your orthodontic treatment quickly you must keep all your appointments and obey instructions given you.

DO NOT bite down on apples, hard candy, or ice.

Brush your teeth at least twice a day.

DO NOT chew gum or eat sticky candy.

DO NOT work with your appliances.

If your appliances become loose, phone the office immediately.

If you have a cold, please call the office for another appointment.

Save all broken parts of your appliances and bring them with you, so that you will not have to spend so much time in the chair.

Fig. 2.—Dots over various letters on the appointment slip control the date, time of day, and length of appointment. For instance, the dot over the letter "o" in "your" indicates an appointment in two weeks. (If it had been under "o" the appointment would have been for two and one-half weeks.) The dot over "Bell" indicates the patient will return between two- and three-thirty o'clock for a fifteen-minute appointment. Two dots would indicate a thirty-minute appointment.

staggered; for instance, one appointment is given in the morning, say at ten o'clock, then the next appointment is given after school, the next appointment given possibly at two-thirty in the afternoon during school, and the next appointment after school. School authorities are quite willing to work on this basis as long as a child who is making low school grades is never taken out during

a weak subject period. By keeping an exact record on the treatment card, it is possible to see that the child never duplicates the exact hour of his appointments. Of course, all new cases are started in the morning.

All appointments are controlled from the treatment room by using a very simple code. The patient's full name is written on a pink appointment slip (Fig. 2). The color of this slip is rather on the ghastly side, making it more noticeable and more effective. The patient's name is written in red if laboratory work is necessary before the next appointment, in blue if he is to see his dentist for an appointment, and in pencil if for our regular appointment. The date of the appointment is indicated by a dot over some letter of the word "your"—for instance, two weeks, over the "o," two and one-half weeks, under the "o," and so on. The time of day of the appointment is indicated by placing a dot in front of Dr. Brooks Bell for from nine to ten-thirty, over Brooks from ten-thirty to twelve, over Bell from two to two-thirty, and after Bell from three-thirty to five. The amount of time needed is also indicated by these dots; for example, one dot for fifteen minutes and two dots for thirty minutes.

The patient takes this pink appointment slip and the treatment card to the secretary's desk, where he is given the designated appointment which is noted on the appointment sheet shown in Fig. 3, in red, blue, or black by the secretary. She also enters this appointment date on the treatment card (Fig. 4,*A*) so that the date of the youngster's appointment can be easily determined without having to search through the whole appointment book.

Though it may appear that it would require considerable time to keep the treatment card accurately, it is handled with a minimum of effort. It is particularly desirable when two or more men are practicing together, enabling one to make an adjustment and another to follow at a later date and make the same adjustment or appliance change without confusion.

This treatment card is used continuously throughout each patient's treatment period. On the front of the card at the top is the usual information; also a place to note missing teeth which are marked in red. The financial arrangements are noted on the memo line.

At the bottom of the card, on the left is a column for elastics—the date worn, the size used, how they are worn, and when they are to be worn. The next column is for the maxillary appliance—the type of construction, when it was placed, and when it was changed. The next column to the right is for the mandibular appliance—how it was constructed, when, and when it was changed. At the top of these columns are shown what teeth are banded in each arch and the types of attachments on the bands. Impression tray sizes are noted above the words maxillary and mandibular, saving time fitting trays each time an impression is made.

The main body of the card is divided into five columns, each column provided with a space for the date at the left, description of the appliance adjustment in the center, and a space for the initial of the doctor doing the adjusting at the right. Each adjustment made is thus noted, dated, and initialed; the forthcoming adjustment is also noted. To the left of the small column carrying

Friday	DATE	August 5
9:00 Wade Vtay (B)	Linda Acord	
9:15 Jerry Bywaters		
9:30 Gilbert Brown	Beverly Bell	
9:45 Linda Kerr	X X X	
10:00 Jan McLendon	Donald Bowman (R)	
10:15 Intha Nan Gray		
10:30 Margaret Crim	Billy Neblett	
10:45 Nancy Reddick	X X X	
11:00 L. I. Guion III	X X X	
11:15 Gail Hickman	Martha Giddens	
11:30 Sydney Ann Shumate	X X X	
11:45		
1:00		
1:15		
1:30		
1:45		
2:00 Jan Sewell	Mary Robbins	
2:15 Patsy Kilpatrick (B)	X X X	
2:30 Patsy Sue Dorner		
2:45 Sue Roane	Linda Kerr	
3:00 Lanelle Andrews	X X X	
3:15 Carolyn Cantwell		
3:30 Susan Wall	Jack Bell	
3:45 Martha Giddens	X X X	
4:00 Joyce Bevans	X X X	
X X X		
4:30 Glen Antle		
4:45		
5:00		

Fig. 3.—The left-hand column lists regular appointments. (*B*) indicates a broken appointment and (*R*) a retainer appointment. The center column carries those names listed in red and blue.

NAME Robbins, Mary (Robert G) BIRTH 12-11-38 HOBBY Girl Scouts

CASE NO. 4011 PHONE 66-2947 ADDRESS 4726 Kelsey Road REFERRED BY Dr. N. L. Reeves

MISSING TEETH M 5/5 MEMO 2½-3 yrs. - * * (* *) DENTIST Dr. N. L. Reeves

Date 1949	Operation			Date	Operation	Date	Operation	Date	Operation	Date	Operation
8-5-49	RI ≠ WMI 6/6 V/V		Q								
8-11	Fit V/V	A	Q								IN RED
8-15	C ≠ ✓ 6/6	M	Q	2.50	Exam						
8-17	Fit 6/6	A	Q								
8-22	C 6/6	P	Q		IN BLUE						
8-25	Pl. Apg.	A	Q								
9-3	A A	A	Q								
9-30	A A	M	Q								
	Cases filled?		Q								
10-26	A A	P	MA								
10-27	A A	F	Q		IN RED						
11-1	B 21/12	M	Q								
11-4	Twins ≠	A	Q								
	R ≠ L Coils		Q								
11-21	BAR	P	Q								

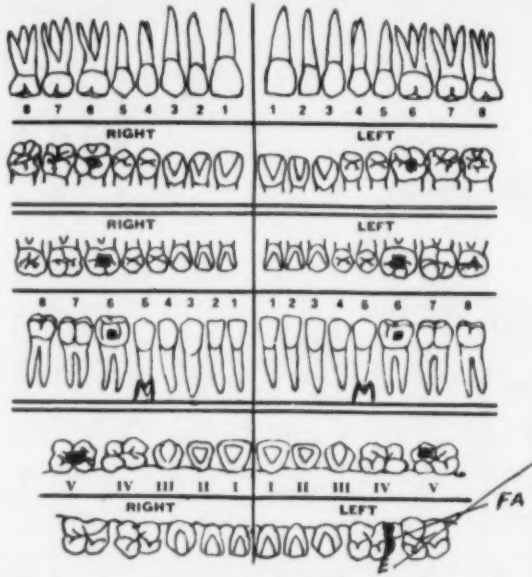
Teeth Banded 6/6 MAXILLARY 9 036036 9 APPLIANCE RECORD V/V MANDIBULAR 27 036 ab ov.

ELASTICS
11-16-49
#6 II R ≠ L A ≠ P

Set			Removed	Set			Removed
8-27-49	Ling. - Apga up	Q		8-15-49	Ling ≠ Apga up	Q	
11-11-49	B 21/12 ≠ Twins with R ≠ L Coils ≠ IE.	Q					

Fig. 4. A.

Fig. 4, A.



Abcessed	Ab	Filled with amalgam	FA	Missing	M
Banded	B	Filled with cement	FC	Separation	S
Brown Stain	BS	Filled with gold	FG	Spaced	Sp
Cavity	C	Filled with synthetic	FS	White line	W
Devitalized	D	Gingivitis	G	X-Ray	X
Extracted	E	Impacted	I		

Date	Broken, Lost, Loose, Etc.
11-21-49	Rt M twin B

REMARKS 8-8-49 As charted B

10-10-49 Ext. Smith

ALL CAVITIES, MISSING TEETH, AND EXTRACTIONS MARKED IN RED

GENERAL REMARKS

8-8-49 Mother also has missing 5's B

BANDS CEMENTED

8-15-49 5's	B
8-22-49 6/6	B
11-11-49 2/12	B

BANDS REMOVED FOR PROPHYLAXIS FILLINGS, ETC.

8-15-50 6/6 5's	

X-RAYS F.M. BW - 8-1-49 N L Reeves

Lwr. Jaw - 8-3-49 N L Reeves OK B

PHOTOS Ft P 7 Intra B

MUSCLE EXERCISE None B

Fig. 4, B.

the initial is noted the approximate time of the appointment, that is, *A*, from nine to ten-thirty, *A-1*, from ten-thirty to twelve, *M*, from two to three-thirty, and *P*, from three-thirty to five, thus enabling us to distribute schooltime appointments fairly. Incidentally, these schooltime appointments are greatly appreciated by the parents and thoroughly enjoyed by the youngsters.

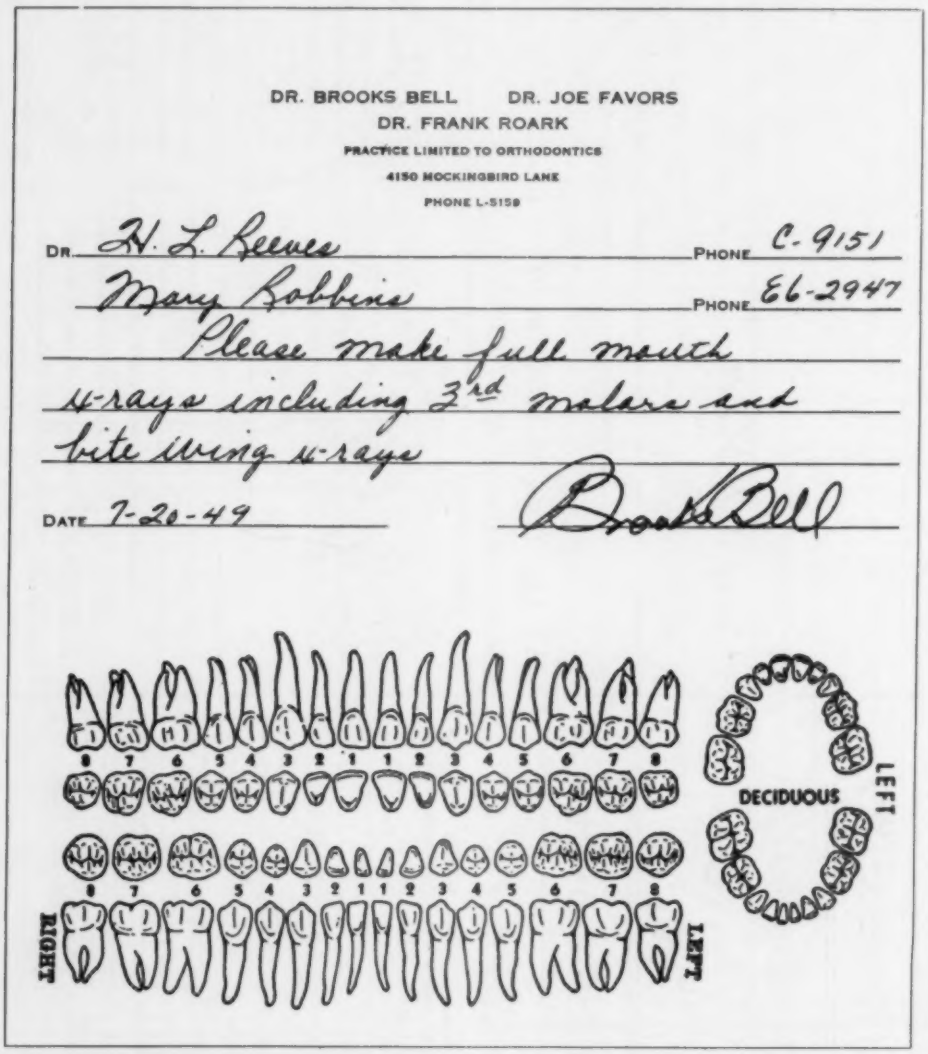


Fig. 5.—Filled out in triplicate. Original copy to dentist, one copy to patient, and one copy for our files.

In the five adjustment columns the date for each future dental examination is marked in blue. The first examination is made when the youngster starts, and at that time the date of the next examination, to be made in six months, is marked on the card. If any cavities are found, the patient is referred to the family dentist, using one of the reference slips shown in Fig. 5.

On the reverse side of the card shown in Fig. 4,*A* (Fig. 4,*B*) is the usual chart of the teeth. Cavities and suspicious spots are marked in red, fillings in

blue, extractions with a red "E," and missing teeth with a red "M." Unusual dental conditions are marked in the *Remarks* column. The *General Remarks* column contains notations of any unusual general physical condition concerning the case.

BREAKAGE LETTERS

#1.

Mr. and Mrs. Robert G. Robbins
4726 Kelsey Road
Dallas, Texas

Dear Mr. and Mrs. Robbins:

Mary's appliances have been breaking considerably in the past few months—on November 21st, December 16th, and again on January 28th. Naturally this breakage has resulted in the progress of her case being retarded.

We are wondering if this breakage has been caused by chewing gum, eating sticky candy, or working with her appliances with her tongue or fingers. Please note if she is doing any of the foregoing.

With best regards,

Brooks Bell

BB: bc

#2.

Mr. and Mrs. Robert G. Robbins
4726 Kelsey Road
Dallas, Texas

Dear Mr. and Mrs. Robbins:

Mary has again broken her appliances and her continuing to do so is greatly delaying the progress of her case. This will cause her treatment to be prolonged past the estimated time, for which the usual charge of $ per year will be made.

Due to Mary's failure to cooperate by continually chewing gum or working with her appliances, a charge of $ will be made for each broken appliance and $ for each broken band hereafter.

Please impress upon Mary that she must not work with her appliances with her tongue or fingers or eat or chew on sticky foods.

Sincerely,

Brooks Bell

BB: bc

Fig. 6.

Under the teeth chart is the column for breakage, in which the date and type are noted. Chronic breakers are thus accurately tabulated; excessive breakers receive a letter (Fig. 6). The *Bands Cemented* and *Bands Removed* columns in Fig. 4,*B* are self-explanatory, each being dated on cementation or removal of any bands.

MEMORANDUM OF FINANCIAL ARRANGEMENTS FOR ORTHODONTIC TREATMENT

The duration of time in the treatment of orthodontic cases is more or less indefinite. From experience it has been found that in this specialized type of work the difficult case is sometimes completed in a shorter period of time than is the simple one, due to the cooperation of parent and child. Frequent appointments will not speed up the progress of the case as proper adjustment of the appliances causes gentle pressure producing movement of the teeth for six to eight weeks. Periodically appliances will be removed to have the teeth cleaned and other necessary dental services.

Inasmuch as orthodontic treatment is continuous throughout the year, charges are made on a yearly basis. Credit, therefore, will not be allowed for niissed appointments or extended absence during vacation. A separate bill will be rendered by your dentist for any dental services necessary during the period of orthodontic treatment, as charges for such services are not included in the cost of orthdontic treatment.

Charges for orthodontic treatment are made on the basis of $ for the first year's treatment. An initial payment of $ is due at this time, and for your convenience in paying the $ yearly cost, statements will be sent for twelve equal payments of $ subsequent to treatment; the first of these will be rendered on October 1st. Second year charges are made on the basis of $ a year, prorated, and statements will be sent for twelve equal payments of $, subsequent to treatment. Third year charges are made on the basis of $ a year, prorated, and statements will be sent for twelve equal payments of $, subsequent to treatment. In the event the period of treatment extends beyond three years, the yearly charges will remain the same. The above charges are based upon cooperation of parent and child.

Mr. and Mrs. Robert G. Robbins
4726 Kelsey Road
Dallas, Texas

For: Mary

August 6, 1949

Fig. 7.

Photographs and muscle exercises are dated with full explanations. Under the *X-ray* column in Fig. 4,*B* are noted the date and type of each x-ray and an O.K. showing they have been carefully checked.

Within two or three days after the first appointment the memorandum shown in Fig. 7 is sent to the parents; incidentally, it goes to Mr. and Mrs., or

Mr. and Mrs. Robert G. Robbins
4726 Kelsey Road
Dallas, Texas

Dear Mr. and Mrs. Robbins:

Enclosed you will find the first statement for the treatment of your daughter, Mary.

We are also enclosing our customary memorandum for your file, which we trust meets with your approval.

An appointment slip, such as will be given Mary each time she is in the office, is attached; it will show the date and time of her next appointment. Please read the reverse side of this slip.

Very truly yours,

Secretary

DR. BROOKS BELL DR. JOE FAVORS
DR. FRANK ROARK
PRACTICE LIMITED TO ORTHODONTICS
4150 MOCKINGBIRD LANE
DALLAS, TEXAS

Mr. and Mrs. Robert G. Robbins August 6, 1949
4726 Kelsey Road
Dallas, Texas

PROFESSIONAL SERVICES:

For: Mary Payment due on yearly charge $

CHARGES FOR ORTHODONTIC TREATMENT ARE MADE ON YEARLY BASIS

Fig. 8.

the guardian, at the home address; a copy is sent to the father's business address. There is no need to go into detail about this memorandum except to call attention to one or two pertinent clauses. The whole first paragraph is built with the idea of impressing upon the patient that cooperation of the child and the parent is absolutely necessary. Also that frequent appointments will not speed up the progress of the case as it is the gentle and constant pressure of the appliances that cause the teeth to move.

THANK YOU LETTERS

NO CARBON COPIES

Dr. H. L. Reeves
4321 Oak Lawn Avenue
Dallas, Texas

Dear Dr. Reeves:

Thank you very much for referring Mr. and Mrs. Robert G. Robbins to me regarding orthodontic treatment for their daughter, Mary.

I made impressions and recommended that they return to you for full-mouth and bite wing x-rays. They are returning to me for diagnosis on August 5th.

With best regards,

Brooks Bell

BB: bc

THANKING ORTHODONTISTS FOR REFERRING CASES — ONE CARBON COPY

Dr._____
_____
_____

Dear Dr._____:

Mrs._____brought_____in to see me about the continuation of his orthodontic treatment and I want to take this opportunity of thanking you for referring them to me.

I will greatly appreciate your sending me his models, x-rays and extra appliances as well as the date the bands were last cemented. Also please advise me of your financial arrangements with them.

Many thanks again for sending the_____'s to me.

With best regards,

Brooks Bell

BB: bc

Fig. 9.

The second paragraph impresses on the parent that orthodontic treatment is of a continuous nature.

RUBBER BAND LETTERS

Placing Rubber Bands

Mr. and Mrs. Robert G. Robbins
4726 Kelsey Road
Dallas, Texas

Dear Mr. and Robbins:

The rubber bands which Mary is now wearing in connection with her appliances furnish a great amount of the pressure necessary to correct her teeth. It is imperative that she wear them as directed—that is, both day and night, except at meals. After each meal fresh ones must be placed.

Failure to wear these rubber bands will result in Mary's orthodontic treatment being unduly prolonged.

With best regards,

Brooks Bell

BB: bc

Failure to Wear Rubber Bands

Mr. and Mrs. Robert G. Robbins
4726 Kelsey Road
Dallas, Texas

Dear Mr. and Mrs. Robbins:

Mary is not wearing her rubber bands and consequently her case is not progressing satisfactorily.

It will be impossible to correct Mary's teeth unless she wears the rubber bands both day and night as directed.

Sincerely,

Brooks Bell

BB:bc

Fig. 10.

This memorandum letter is not signed by the doctor but is accompanied by a letter signed by the secretary (Fig. 8). The psychological effect of having this memorandum accompanied by a letter from the secretary is to establish the basis for the future discussion of the account between the parent and the secretary.

The white card shown in Fig. 1 is attached to, and filed with, this memo letter. Please notice on the statement accompanying the memo letter (Fig. 8) the phrase, "Payment due on yearly charge."

Letters of thanks (Fig. 9), are self-explanatory and are mailed as soon as possible after seeing the patient. It has been found that a personal letter conveys appreciation of the reference more than any other way, especially if some personal remark in longhand is added.

WISDOM TEETH EXTRACTION LETTERS

(Original and two carbon copies. One copy to dentist.)

Mr. and Mrs. Robert G. Robbins
4726 Kelsey Road
Dallas, Texas

Dear Mr. and Mrs. Robbins:

The x-rays made of Mary's wisdom teeth by Dr. Reeves show that the lower wisdom teeth are causing pressure on the rest of her teeth in trying to erupt. I believe, therefore, that they should be removed at this time._(Clause a or b.)

I suggest that you get in touch with Dr. Reeves and have them removed in the next few weeks.

With best regards,

Brooks Bell

BB: bc

a The uppers may also have to be removed.

b The uppers, however, can wait until later.

Fig. 11.

Reference slips (Fig. 5) are made out in triplicate. The original with suspicious areas marked in red is sent to the family dentist, one copy is given to the patient, and one copy is kept for our files.

The other letters (Figs. 10, 11, 12, 13, 14, 15, and 16) are self-explanatory. They simply save time that would be consumed in thinking up a letter for each occasion. A yellow chum card 6¼ inches by 3½ inches (Fig. 17) is mailed to the patient who is neglecting to wear his elastics. He not only gets a kick out of getting this postcard through the mail, but is also furnished a daily reminder, which is very effective.

MAINTAINER LETTER

Mr. and Mrs. Robert G. Robbins
4726 Kelsey Road
Dallas, Texas

Dear Mr. and Mrs. Robbins:

The appliance placed for Mary is not an active treatment appliance but is a maintaining appliance to prevent collapse of the dental arch. Periodic inspections are necessary to be sure it is working properly. So, as is our custom, we will notify you of her appointments at regular intervals.

Charges will be made as follows: $ initial cost, payable at this time, and $ per office visit.

With best regards,

Brooks Bell

BB: bc

OBSERVATION LETTER WHEN SPACE MAINTAINER REMOVED

Mr. and Mrs. Robert G. Robbins
4726 Kelsey Road
Dallas, Texas

Dear Mr. and Mrs. Robbins:

The space maintainer in Mary's mouth has been removed as the underlying permanent tooth is erupting into its normal position. However, her mouth should be checked periodically to be sure that the other teeth are erupting into their correct positions. So, as is our custom, we will send an appointment slip to you at the proper time.

The cost of these check-ups will be the usual $ office visit charge.

With best regards,

Brooks Bell

Fig. 12.

OBSERVATION LETTER

(Original and two carbon copies. One copy to dentist.)

Mr. and Mrs. Robert G. Robbins
4726 Kelsey Road
Dallas, Texas

Dear Mr. and Mrs. Robbins:

Mary's treatment has progressed to the point that we feel her active treatment can be discontinued for a while, so she has been placed on an observation period which does not require frequent visits. However her mouth should be checked periodically so that if it becomes necessary to replace her appliances we can do so at the proper time. These check-ups are also made to be sure that the teeth are erupting into their proper position. So, as is our custom, we will notify you of her appointments at regular intervals.

The regular yearly charge will be discontinued. The cost of these check-ups will be the usual $ office visit charge.

Mary should go in to Dr. Reeves and have her teeth cleaned, any cavities filled, and any necessary x-rays made within the next few days. *X-rays should also be made by Dr. Reeves at least every twelve months to be sure that the wisdom teeth, which are now forming, do not grow in improperly and cause pressure that might disarrange the other teeth. I will be glad to check these x-rays with Dr. Reeves for you.

Please have Mary come in any time you feel her mouth should be checked as any relapse may necessitate replacing her appliances.

With best regards,

Brooks Bell

BB: bc

*Omit if wisdom teeth extracted. See Treatment Card.

Fig. 13.

RETAINER LETTER

(Original and two carbon copies. One copy to dentist.)

Mr. and Mrs. Robert G. Robbins
4726 Kelsey Road
Dallas, Texas

Dear Mr. and Mrs. Robbins:

Inasmuch as the actual movement of Mary's teeth is complete, a retainer has been placed. This retainer does not require frequent visits, but still it should be checked periodically. These check-ups are made to be sure that the teeth are being retained in their correct positions.

Failure to wear the retainer as directed, which evidences itself immediately on examination, will result in relapse and necessitate retreatment of the case at the usual charge.

The regular yearly charge will be discontinued. The cost of these check-ups will be the usual $ office visit charge. In case of loss or breakage of the retainer, which should not occur, a charge of $ will be made.

Mary should go in to Dr. Reeves and have her teeth cleaned, any cavities filled, and any necessary x-rays made within the next few days. *X-rays should also be made by Dr. Reeves at least every twelve months to be sure that the wisdom teeth, which are now forming, do not grow in improperly and cause pressure that might disarrange the other teeth. I will be glad to check these x-rays with Dr. Reeves for you.

Please have Mary come in any time the retainer is uncomfortable or seems out of place.

With best regards,

Brooks Bell

BB: bc

*Omit if wisdom teeth extracted. See Treatment Card.

Fig. 14.

When an appointment is missed, no effort is made to contact a patient or parent on the phone, for by actual count it has been found that it takes a minimum of three phone calls of not less than three minutes each to make a contact. So a missed appointment slip (Fig. 18) is used; it is the same atrocious pink as the appointment slip, and it instantly commands attention. This missed appointment slip is mailed out the day after the appointment is missed and it rarely fails to bring the child in.

COMPLETED LETTER

(Original and two carbon copies. One copy to dentist.)

Mr. and Mrs. Robert G. Robbins
4726 Kelsey Road
Dallas, Texas

Dear Mr. and Mrs. Robbins:

Experience has proven in the past that it is wise to have teeth checked periodically even after orthodontic treatment has been completed; so, as is our custom, we will send an appointment date to you at the proper time.

The regular yearly charge will be discontinued. The cost of these check-ups will be the usual $ office visit charge.

Mary should go in to Dr. Reeves and have her teeth cleaned, any cavities filled, and the necessary x-rays made within the next few days. *X-rays should also be made by Dr. Reeves at least every twelve months to be sure that the wisdom teeth, which are now forming, do not grow in improperly and cause pressure that might disarrange the other teeth. I will be glad to check these x-rays with Dr. Reeves for you.

Please have Mary come in any time you feel that her mouth should be checked.

With best regards,

Brooks Bell

BB: bc

*Omit if wisdom teeth extracted. See Treatment Card.

Fig. 15.

A similar slip (Fig. 19) for patients under observation works most satisfactorily.

The Dallas County Dental Society has been back of the dental health program in the Dallas schools for more than eighteen years. Its success has been largely made possible by the use of the "Star System" showing dental work done in each child's mouth. These "Star" slips are provided by the Dallas school system and one is shown in Fig. 20. Fig. 21 shows the type of excuse

TRANSFER LETTER

(Fill out for Son or Daughter)

Dr._____

_____

_____

Dear Dr._____:

I am referring_____, age_____, son of_____to you for continuation of treatment. He has been under treatment with me since_____and has been a most cooperative patient.

_____bands and appliances are constructed of chrome alloy. In the maxillary, he is wearing_____

_____

_____

In the mandibular, he is wearing_____

_____

_____

Please feel free to make any appliance changes that you see fit.

The bands were last cemented_____

Financial arrangements for_____case were as follows:

_____

_____

I have advised the_____that they should make their financial arrangements with you.

Mrs._____is bringing the models and x-rays.

Or

_____Models and X-rays are being mailed to you separately.

Kindly advise me if you need any further information. Please say "hello" to_____ for me.

With best regards,

Fig. 16.

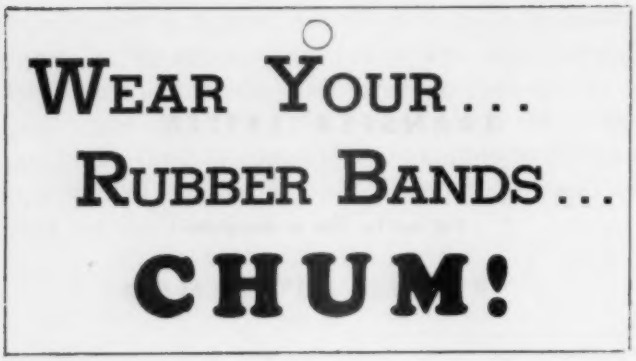


Fig. 17.

Fig. 18.

Mary Robbins missed her regular appointment on August 3rd at 2:30.

We are reserving Friday, August 5th at 2:00 for another appointment. It is important that this appointment be kept.

If this time is not satisfactory, kindly phone our secretary today.

DR. BROOKS BELL DR. JOE FAVORS
DR. FRANK ROARK
PHONE L-5159

We are reserving Friday, August 5th

at 2:00 to check over Mary's teeth.

If this time is not satisfactory, kindly phone our secretary today.

DR. BROOKS BELL DR. JOE FAVORS
DR. FRANK ROARK
PHONE L-5159

Fig. 19.

slip furnished by the Dallas school system for excused absences without the child being penalized. It makes appointments during school hours completely acceptable to the parent and the patient.

Fig. 20.

Form C-92 30M—2301—48

DALLAS INDEPENDENT SCHOOL DISTRICT
DALLAS, TEXAS

NOTICE TO PRINCIPAL OF MEDICAL OR DENTAL APPOINTMENT

Mary Robbins was in my office for ~~Medical~~ Dental attention from 9:00 A.M. to 9:30 A.M. today. This pupil ~~will not~~ will be expected to return to my office for an appointment at 2:30 P.M. on October 25th My office is in the 4150 Mockingbird Lane ~~Building~~.

Date September 30th Signed Brooks Bell M.D. D.D.S.

PRINCIPAL'S REPORT ON THE ABOVE APPOINTMENT

The above named pupil returned to school at _____ M., and was out of school _____ hours and _____ minutes to keep this appointment.

Signed _____ School _____

NOTE. The principal will send this report to the Department of School Health Service in Tuesday's mail.

DALLAS COUNTY DENTAL SOCIETY
COOPERATING WITH
DEPARTMENT OF SCHOOL HEALTH WORK
DALLAS PUBLIC SCHOOLS

DENTAL REPORT

This is to certify that Mary Robbins has had necessary dental work done at this time and is entitled to star as checked below.

X GOLD STAR—There are no dental defects evident; all cavities have been filled; teeth are clean and well cared for. Children wearing Orthodontic Appliancs must have all other operative work completed.

— SILVER STAR—All dental work necessary at this time has been done; teeth are clean and well cared for.

— BLUE STAR—All dental defects have not been corrected, but some corrective work has been done in the last six months.

October 27, 1949 Brooks Bell D.D.S.
DATE

This Dental Report expires in six months.

Fig. 21.

Part II. Psychological Factors That Bring About a More Pleasant Patient-Parent-Doctor Relationship

The second part of this paper is presented under the super deluxe title of, "Psychological Factors That Bring About a More Pleasant Patient-Parent-Doctor Relationship." Of course, discussing psychological factors in an orthodontic practice is much like giving a ten-word summary of the rules of Canasta. However, it has been found that there are many such factors that enter into the handling of a properly conducted practice, many of which are performed unconsciously. The longer ones practices, the more likely one is to get into a rut of disregarding certain psychological aspects of a practice and the opportunity to know and enjoy our patients more.

And so, it may be well to re-establish a psychological relationship between the patients, their parents, and the orthodontist. Here are some of the things that have been found to be helpful.

In the first place, it is well known that the reception room is the showcase of the office and makes the first psychological impression on our patients. Consequently, this room should reflect the personality of the orthodontist. It has been found that redoing a reception room every few years re-establishes the interest of the doctor and his assistants in this all-important room. Parents and patients also enjoy these changes. Magazines should not be over three years old.

The assistant presiding over the reception room gives the patient his second psychological reaction to the office. She must, of course, be pleasant, courteous, well groomed, but not necessarily a raving beauty. We give our assistants complete charge of the handling of our patients in the reception room for women just have more social sense than men and can make a patient feel more at home in the office. This they can do in many ways.

One of these ways may be demonstrated when a patient comes in while the secretary is busy. She interrupts what she is doing to say pleasantly, "I will be with *you* in a moment." She emphasizes the "you" which gives the impression that she is most anxious to be of assistance.

Our assistants make it a point to call our patients by their given names, and also to address their parents by their surnames. There is an old adage in psychology that "nothing builds the ego more than having ones name pronounced." To that should be added *correctly* pronounced.

In talking on the phone the secretary should avoid using the word "appointment" as much as possible; she should say, "I will reserve Monday at 3:30 for you, Mrs. Robbins. Will that time be satisfactory?" For some reason a "reservation" means more than an appointment.

Incidentally, it is never wise to offer the choice of two different hours to the patient. This simply confuses him and causes a waste of time while he thinks it over and tries to make up his mind which hour to come.

In giving an appointment the secretary should say, "Johnny, we will see you again at 3:30 on the 29th." (This is usually about three weeks.) To say, "We will see you again two weeks from today" sets up in Johnny's mind that he is to return every two weeks at that particular hour.

It has been found to be good psychology to eliminate harsh-sounding words from the orthodontic vocabulary. For instance avoid the use of harsh words like "scrape," "grind," "cut," "extract," and "file," and substitute gentle-sounding words. Substitutions for these words will be given later.

All patients are apprehensive when they come to see us for the first time, so try to keep this visit completely informal. When going into the treatment room (not "operating room"), always speak to the child first like, "Hi Mary, how are you?" And then introduce yourself to the parent. Then sit down on the treatment stool and start a casual conversation with Mary. In a few minutes, ask her what seems to be the matter with her teeth and she will start telling you. At this point watch to see if Mary says, "My teeth are crooked." Or if she says, "My Mother thinks my teeth are crooked." The latter statement might mean that you will have an uncooperative patient unless you make every effort to offset her idea that she is being forced into having her teeth corrected.

Up until this time you have not washed your hands nor shown any instruments. After talking casually a few minutes, leisurely turn and wash your hands, all the while talking with Mary. Then take a hand mirror and a mouth mirror out of the instrument drawer, and say, "Well, Mary, let's take a look at your teeth—you hold this big mirror and I'll look with this little one." Mary's taking part in this examination helps remove much of her apprehension.

When you start to make the impressions Mary can be told that you are going to make "prints" of her teeth. (The term "impression" means nothing to Mary except for the times she has been told that she made a poor impression on the visiting preacher.) Tell her that these prints will be made with some "stuff." That term is a standard one used by youngsters. Say, "It is going to be made with stuff like modeling clay which doesn't taste like ice cream, but which doesn't taste so bad either." In fitting the impression trays say, "Mary, when you buy shoes you always have your feet measured to see what size you wear, don't you? Well that's what I'm doing now, measuring your mouth to see what size appliances you will wear."

After the impression has been made say, "Now that didn't taste like ice cream, did it?" Mary laughs and says, "Sure didn't," and more than likely forgets to say just what it did taste like. (This is an idea that Nat Gaston of Monroe gave me.)

When the time comes to separate the teeth, say, "Let's slip this little wire between your teeth and push them apart just a little bit so that the next time we can slip the ring on your tooth just like you put a ring on your finger." These "easy" terms, slip, push, put, make Mary feel that she will have a comfortable visit next time. Just as you are ready to start the separating wire between the teeth, say, "Now, Mary, this may or may not poke you a little—you never can tell." By the time you have told Mary this, the separating wire is through. But Mary has been forewarned that it may or may not "poke," and so is not startled if it does. After the wire is through say, "Mary, I'm going to tighten this wire a little bit—you tell me when to stop." And the separation is obtained with Mary's help. Then say, "Now lets snip off this wire." Never say, "Cut off."

When Mary returns to try on the bands you can say, "Mary, let's take this little wire out and slip the ring on your tooth." Using the term "let's" makes Mary feel that she is taking part in the placing of her appliances. Frequent use of Mary's name makes her feel more important. After the bands have been fitted on the teeth and you start to remove them, say, "Mary, I'm going to slip these rings off your teeth. This is the way we always remove your bands." Changing "rings" to "bands" improves Mary's orthodontic vocabulary. Also the idea is implanted that her bands will always be easily removed.

When the time comes for cementing, avoid the use of the word "cement." This term always brings two ideas to the young patient's mind: (1) "Is it like sidewalk cement?" (2) "If it is cement, how are you going to get the ring off?" So, avoid this term and the conversation will run about as follows: "Well Mary, we are about ready to start putting on your appliances. Miss Jones will sterilize your tooth (all youngsters know what "sterilize" means) and we will seal the band on your tooth with this sticky stuff which I am going to mix. It will keep your tooth from decaying, too." This is a shot for mama to absorb.

It is a mistake to tell the youngster, "After that cement gets hard, I will scrape off all the extra." In the first place, you create apprehension by foretelling that you will do something that the youngster does not understand. In the second place, the word "scrape" is one that makes the flesh crawl. So do not mention what you are going to do. Just say, "Let's let the sticky stuff dry a few minutes." When the time comes to take the cement off, say, "Now I am going to take off this extra sticky stuff."

In getting the appliance ready to place it is never wise to say, "Grind off these rough places," for this immediately puts into the child's mind that there are rough places on her bands and appliances. Just say, "Mary, I am going to polish this appliance up a little bit."

When the appliance is in place say, "Mary, that appliance is going to feel like I left part of my fist in your mouth for a little while (don't say for a few hours, or a few days), but you will get used to it for you are such a good patient. Just don't play with it with your fingers or your tongue and you will get along just fine."

In placing the appliance, always carefully question Mary by saying, "Mary, do you feel the appliance pushing any place?" Keep asking her this and explaining that if she feels it pushing, her teeth will be sore the next morning. Mary sits and trys to find a little pressure, and, of course, is usually successful. Then remove the appliance and replace it several times until Mary says she does not feel any pressure. Mary is thus impressed with the fact that it is her fault if her teeth are sore the next morning because she did not tell you about the "push."

Then as she is leaving you can say, "Well, Mary, that feels fine now, doesn't it?" And again, it is up to Mary to say whether or not the appliance is bothering her. You can then add, "You have been a mighty nice patient."

The next day, I phone Mary's mother to find out how she is getting along with her appliances. She usually mentions that Mary would not eat any toast for breakfast. I tell her that "This is always the case and that breakfast the

morning after the appliances are placed is the most uncomfortable meal; however, by lunch Mary will have forgotten her appliance. But if she does complain, *without being asked about her mouth*, be sure and phone the office and we will give you a definite time to bring Mary in.'' It is seldom necessary for Mary to come in.

Now this one little courtesy, one little psychological angle, is greatly appreciated by the parents. Moreover, it gives you the satisfaction of knowing that the youngster is getting along properly. It also impresses upon the parent that a definite appointment is always necessary; dropping in is thus discouraged.

Sometimes a patient does return complaining of soreness. When this happens, I check the mouth thoroughly to see just what is wrong. As you well know, 80 per cent of the time absolutely nothing is the matter. But rather than try to argue the youngster into believing nothing is wrong, I say, ''Why sure, I see what's troubling you.'' Then I remove the appliance, take it into the laboratory, and sit down and rest my aching feet a few minutes. Then I return to the treatment room with the appliance, many times having found that nothing is necessary in the way of adjustment, replace the appliance, and say, ''I'll bet that feels lots better now, doesn't it?'' and the reply is always, ''Yes,'' and the ''soreness'' disappears.

By this one little act you have gained the complete confidence of your patient by showing him you respect his judgment on his ''soreness'' and want him to be comfortable by ''adjusting.''

When teeth have to be extracted, do not use the word ''extract.'' I am always reminded when ''extract'' is used of our family dentist in West Texas who, when asked if he extracted teeth, replied, ''H____ no, I drink extract and pull teeth.'' And so, recommend that teeth be ''removed.''

All of us know that one of our most gratifying experiences is when we are able to remove the bands from anterior teeth. As the patient also gets a kick out of seeing his teeth uncovered, try handing him a mirror and telling him to take a look, after first being sure that all traces of cement have been removed, for even a slight bit of cement will lead the patient to say, ''There is a decayed spot.'' And this ''decayed spot'' angle may stick in his mind for a long time.

As mentioned, each patient takes his treatment card and his appointment slip to the secretary's desk. He gets a feeling of importance and of helping run the office in doing this, and the younger the child the more he will insist on doing this for himself. This is simply another psychological angle which makes the youngster feel at home in the office.

In dismissing a patient with a retainer, tell him how to take care of it and when to wear it, i.e., ''Never wear it swimming, to a movie, or to a party.'' The patient will take better care of his retainer on this basis.

For years we had trouble getting completed cases to return for check-ups even though they were assured that there would be no charge whatsoever for these visits. Less than 15 per cent ever returned though we notified them four or five times before giving up. Now when a patient is dismissed he is told that periodical check-ups will be necessary, for which an office visit charge will be made; a letter is also written to this effect. Now the percentage of check-ups runs about 87 per cent.

We construct all our appliances indirectly and we used to throw away the casts on which appliances were constructed. Now they are given to the patient for "an ash tray for daddy," and the youngsters are delighted. Incidentally, it also furnishes mamma with something to show her friends how Mary's case has progressed.

Do you, too, find it easy to be your charming best when a patient first comes in for diagnosis and starts? Then after you have had that youngster under treatment for several years you become grouchy and wordless when he returns again and again. Now, it is just barely possible that it is more our fault than his that he is still coming to our office and that he is mighty tired of looking at us too. So let's turn on our personality even when this "unusual case" continues to be with us.

I have been discussing the active psychological relationship between the orthodontist and his patients. There are other psychological factors which must also be considered.

For instance, even those in the general practice of dentistry are being deliberately confused as evidenced by an article which appeared in the October issue of *Dental Survey* under the title "The Age Factor of the Treatment of Malocclusion by Autokinesis." This article does not consider the controversial aspects of the argument concerning extraction or nonextraction of teeth for the correction of malocclusion now going on in orthodontics. The author, Dr. Warren Hayes, of Waukon, Iowa, blandly advocates the following:

"It is common practice, after orthodontic extractions, to place orthodontic appliances to move malposed teeth into position. While the effort to produce the optimum result is commendable, dental practitioners are becoming increasingly aware of the fact that natural forces will attain results equally beautiful and will actually perform the act more quickly since the teeth respond more eagerly to the natural forces of mastication than to artificial traction. Also, the natural method results in more normal interdental contacts, a condition which is obviously impossible when from sixteen to thirty-two thicknesses of band metal are interposed between the teeth. Many cases treated with appliances will attain the desirable tight contacts after appliances are removed, but seldom will they be as firm as those that result from natural postextraction correction.

"Those who practice orthodontics by autokinesis should be prepared to speak confidently concerning the direction and speed of movement of teeth that are allowed to adjust themselves naturally. What is more important, they should be prepared to state unequivocally at what time of development of the child autokinesis is more dependable and, conversely, at what age it becomes less dependable.

"Knowing the probable speed and direction of movement, it is quite simple to adapt this knowledge to any specific case, after allowing for patient age, vitality and local factors such as overlapping teeth, this latter condition necessitating a combination of movements that will retard the correction somewhat."

In my opinion, this misinforming article is the greatest blow that orthodontics has received since it has become a specialty, for this magazine is dis-

tributed to more than 72,000 dentists. The results can be disastrous to the general public as the article attempts to nullify, by malicious censure, the years of effort spent by orthodontists in establishing clinically that extraction of teeth results in pathologic conditions of the gingival tissues and osseous structures that cannot be corrected.

Such general practitioners as follow this so-called treatment by autokinesis will shortly discover that it is an uncontrollable, mechanical travesty. They will then have to determine which route of correcting the malocclusion to follow—to place bridges to close the spaces caused by their extracting or to place orthodontic appliances to close these spaces.

The conscientious practitioner will, of course, choose the latter method. And since he is not properly equipped to construct orthodontic appliances he will have to request his dental laboratory to do so.

Thus will start another chaotic period such as existed more than ten years ago when unscrupulous orthodontic laboratories were in operation. And the results will be the same—maltreatment of the patient with the resulting loss of public respect by the dentist. It will again be demonstrated, at the expense of the dental health of the patient, that malocclusion cannot be satisfactorily corrected by using laboratory-constructed appliances.

It will be recalled that during the time when orthodontic laboratories flourished and the public suffered, the following trite saying was widely used by dentists, "Laboratory constructed appliances create rather than correct malocclusion."

Unquestionably, extraction does have its place in some types of malocclusion; however, extraction without the guiding influence of properly constructed and intelligently controlled orthodontic appliances creates unpredictable pathologic conditions. The promiscuous extraction of teeth, based on indifferent or imprudent diagnosis or the assumption that all cases of malocclusion must be treated alike, creates the erroneous impression that the highly necessary science and art of orthodontics, one of the most important departments of health service, is outmoded.

Patients and their parents are also subjected to psychological reactions even before they come into our offices. At the present time, they are being considerably confused by the open bickering going on in our profession concerning techniques and materials.

It will be recalled that a few years ago Akers Bridges, Lucite denture material and Heidbrink gas machines were all the vogue. Dentists made the mistake of using these and other trade names to patients with the result that they began to ask for "Akers bridges," "Lucite dentures," or anesthetics using the "Heidbrink machine." The skill of the operator was disregarded, and dental services were bought on a trade name basis.

This buying of a "trade name" is beginning to occur in orthodontics. The public is beginning to ask if we use such and such material, or if we use so and so's technique. The profession is losing caste, as we are being placed in the position of being purveyors of materials and operators of certain techniques.

Orthodontics is being made to appear as a ridiculous racket instead of an important department of health service. This is leading to the loss of the respect in which our profession has long been held by the public and professional groups.

Assuredly, the leaders in our profession, Dr. Mershon, Dr. Oliver, Dr. Pollock, Dr. McCoy, Dr. Arnold, Dr. Tweed, Dr. Johnson, and Dr. Atkinson, deserve to receive every bit of recognition that we members of the orthodontic profession can give them. But surely not one of these men would like for his name to be used as a "trade name."

The practice of orthodontics should be as individualistic as the patients presenting themselves for treatment.

We must not cheapen the fine written records of orthodontics, for which there is no parallel in dentistry and very few in medicine, by bringing into these records temporary concepts that are misleading and confusing the public.

Our profession, which is both a science and an art, was founded, and has progressed to its present high standard, upon the fundamental principle that we are treating by mechanical means biologic structures which may respond physiologically or pathologically. As long as we conduct our practices so as to adhere to this fundamental principle and do not permit the public to think of us in terms of techniques and materials, we remain members of a profession.

Orthodontics, to maintain its high standard of professional integrity, must avoid every effort to bring about its commercialization, from within our profession or from without. Each of us must conduct his practice in such a manner that he is recognized for his own integrity and ability.

A quotation from *Hamlet* is most apropos:

> . . . to thine own self be true,
> and it must follow, as the night the day,
> Thou canst not then be false to any man.

ORTHODONTICS AND ORTHODONTISTS

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THE most unfortunate feature of present-day orthodontics is the confusion and bitterly conflicting differences of opinion which exist between members of the profession.

Taking into account the relative youth of the specialty, the great range of complexities of the problems involved, and the acknowledged stubbornness of human nature, the present state of affairs is quite in line with what might be expected.

There is no question but that much progress has been made since the not too distant early days, and that many fine results are being obtained by any one of several different philosophies and methods of procedure, but just how much these successes are due to the inherent cleverness and artistic skill of certain gifted operators, rather than the virtues of the methods employed, is a debatable question.

Certain it is that all sincere, open-minded men in the profession are anxiously looking for some common ground of understanding whereby basic concepts and methods of procedure may be more closely agreed upon so that more uniform and better results may be attained with more unanimity and cordiality of opinion.

If such a happy solution is ever to be arrived at, it can only be looked for from the efforts of men of mature practical experience and broad-minded background who, with intelligence and boldness, will undertake to find logical solutions to these differences. In this process anyone may rest assured that only the truth will eventually survive, and that the coming battle which must of necessity be fought out between these conflicting ideologies presents an inescapable challenge to those who possess some sporting blood in their veins, and who wish to make some genuine contribution to the future of orthodontics.

This matter is of such vital importance that those who are willing to enter the fray may have to make sacrifices, some of which may possibly put a severe strain on some valued personal relationships. This, unfortunately, is often the case where principles are involved, even when there is no question as to the sincerity of purpose between those who entertain opposite viewpoints.

Orthodontics is faced today with two main conflicting philosophies and methods of procedure which are as diametrically opposed and incompatible as the ideologies of democracy and dictatorships. It is quite impossible to subscribe to the principles of both at the same time. An analysis of the reasons

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which have led to this condition is vitally important for a clear understanding of the fundamental issue involved.

The pivotal point at issue is concerned with the way in which that inescapable, desperately difficult, and fantastically complex factor of the *infinite variation* of the human organism is dealt with.

Some very wise thinker has said that the course of human education runs through three stages:

Romance: the phase of initial appreciation.
Precision: breadth of relationship subordinate to exactness of formulation.
Generalization: Return to romanticism with the added advantage of classified ideas and relevant techniques.

The key to the whole situation may be found in a careful and thoughtful consideration of the basic difference which exists between the second and third stages of education, and its meaning as related to orthodontics. It is categorically impossible to harness infinite variation to any form of exactness of formulation. That is the crux of the whole problem.

This leads directly to the basic difference between the two types of men whose mentality and entire outlook on life are directly responsible for the present difficulty. Modern orthodontics started during the era of Angle and Case, and these two men themselves are fairly good examples of what these two divergent types represent—the clinician and the teacher, the romanticist and the classicist. Professor Wheeler very ably described the characteristics of each when he said the romanticist is "*mentally oriented toward and controlled by objective, concrete reality, and probably because his senses, especially those of sight and touch, are highly developed, is powerfully affected by the esthetic appeal of natural objects.* He is little interested in, and may even be quite blind to abstract or theoretical considerations.

"*He is primarily an observer, deeply impressed by the overwhelming intricacy of natural phenomena and revelling in their very complexity.* He is, therefore, more or less irrational, intuitive, and passive in his attitude toward natural objects, *synthesizing rather than analysing.*"

On the other hand, the classicist is "oriented toward and dominated by ideas, and rather terrified or oppressed by the intricate hurly-burly of concrete, sensuous reality and its multiform and multicolored individual manifestations. His will to power takes the form of experimentation and the *controlling of phenomena* by capturing them in a net of abstract formulas and laws. *His besetting sin is oversimplification* and the tendency of *undue isolation of the organisms he studies from their natural environment.*"

In addition to these two basic types into which original thinkers are more or less divided, there is still another very uneven division of men in general.

LEADERS AND DISCIPLES

There are those who elect to exercise their own personal liberty of thought and action above every other consideration, and those who are meekly willing to sacrifice these gifts in order to follow a leader. These latter, following a

leader, will accept blindly the most absurd theories, either because they lack the mental capacity, or in order to avoid the painful effort of doing a little original thinking, and because they like to enjoy the comforting protection found in the mass psychology of some self-satisfied, opinionated, and often fanatical group.

Orthodontists would have to be supermen not to have fallen for this common human failing which has been the curse of religion and government, both of which antedate orthodontics by a matter of a few thousand years.

The essential element of a successful leader is to have a *definite plan* which, together usually with some dogmatic "ritual" or "system" of procedure, must be obeyed abjectly by all of his followers. The slightest deviation from the party line is calculated to bring dire consequences to a dissenter. Some wag has said, "Never argue with a disciple because you are licked from the start." Nothing truer was ever said because a disciple has no mind of his own, and we have today in orthodontics the absurd situation of at least one group of disciples who are following a system which has already been discarded by its originator.

If the lessons from history are of any value it can confidently be said that all plans for controlling human activities which disregard the inherent qualities of human individuality, whether they be spiritual, mental, or physical, are doomed to eventual failure, however, imposing any temporary or incidental successes may be, for the simple reason that *infinite variation*, wherever it may be found, can never be saddled with any set formula.

ANGLE AND CASE

The most outstanding figure in orthodontic history to the present time, based on the influence he has exerted on the profession, is undoubtedly Edward H. Angle. The other outstanding figure of his time (and bitter personal enemy) is Calvin Case, who is hardly mentioned today for reasons which are quite understandable. Angle had a *definite plan* and a concrete technique which could be followed blindly by those who were willing to submit unconditionally to his arbitrary dictation.

Angle's place in orthodontic history will always be secure in that he made many contributions of permanent value; he had the human virtues and failings of a real pioneer. It is transparently obvious in the light of present knowledge and by the simplest exercise of logic and common sense that he was absolutely wrong on most of his fundamental concepts to such an extent that Brash, who has probably made the most scientific survey of the subject to date, felt constrained to say that he had actually done orthodontics a "disservice."

One of Angle's well-known characteristics was that while he was entertaining any particular pet theory of his own, whether in the speculative realm of objectives or pure mechanics, he would brook no difference of opinion from anyone. There are still numerous members of his "backdoor" club. He did, however, possess the virtue of all originators, of having a mind of his own which he was *constantly changing*. There is a vast difference between his original expansion arch and the steps that led to his *"latest and best"* "edgewise"

appliance, which he left the profession at the time of his death, and which is still widely used today.

Any difference of opinion which any thinking orthodontist may have with the whole basic concept or philosophy of the "edgewise" technique is, therefore, no particular reflection on Angle himself, but rather on certain "disciples" who are still following the methods, and to a great extent the technique of a master who has long been in his grave, and who, in all probability, would have completely changed his mind again by this time were he still living.

Orthodontic treatment based on the "edgewise" technique philosophy represents one extreme of the orthodontic picture as it exists today. Its technique, *when followed in its entirety* at the dictates of its present leaders, is the most mechanistic, regimented system to which poor, inoffensive teeth can possibly be subjected, and quite in keeping with the dogmatic ideas of its originator at the time of his demise. A member of this "totalitarian" group recently confessed that "they were expecting rather too much of patients when they put 28 bands on their teeth, made them wear head-caps, then added tooth-positioners, and finally required retainers."

The mere physical labor of a mechanical nature alone, which is required of the operators who use this system exclusively, demands such an excessive number of hours at the chair per patient that it is admitted that their practices are limited to about fifty cases a year.

One of Angle's inflexible dogmas during most of his lifetime was that the objective of orthodontic treatment in all cases was "ideal occlusion." Without one vestige of scientific fact to go on, disregarding completely and even denying the laws of heredity which include that most important and unpredictable factor of hybridization, and without any logic or common sense, he pronounced his dictum. His main gibes against Case were directed against Case's much saner and infinitely more comprehensive and artistic concept of orthodontics, in which he advocated, among other things, the occasional removal of teeth. This, naturally, was at that time considered heresy, a lowering of ideals, treason to the cause, with the penalty of loss of reputation and humiliation to anyone who so much as breathed such a thought. Angle and his followers made Case the goat of his age!

Since then Angle's followers have reversed themselves completely on the much debated problem of extraction until today the most ruthless advocates of this measure are found in this group; some claiming that extractions are called for in up to 90 per cent of cases. It is exceedingly likely that time will show that the exaggerated use of this expedient is just as unnecessary, and even more harmful than Angle's already discredited first original objective. Efforts to justify this have been made by an intensive hookup with cephalometric diagnosis.

There is not a more sincere wish on the part of any practicing orthodontist but that some more concrete scientific diagnostic basis could be found to relieve that very much overworked, but absolutely indispensable element of clinical judgment. There have been attempts in this direction in the past, all of which,

after the initial furor has abated, have left some residue of practical value. Stanton and Hanau contributed something with their surveying and engineering research, as did Simon with his gnathostatics. All the efforts which have been made in the past, together with those of the present and future, to reduce to a drawing board problems which involve the dynamics of function, together with the unpredictable volitional idiosyncrasies of the individual which are part and parcel of orthodontics, may be confidently predicted to have only a very relative value. Broadbent himself would be about the last man in the world to claim more than that for his invaluable contributions to cephalometrics. The most complicated charts *when used too confidently in making diagnostic appraisals* are actually unscientific attempts at "oversimplification" compared with the subtlety necessary to balance *all* the actual factors involved in making clinical decisions.

Cephalometrics seems to offer one of the most promising means of determining more scientifically what the actual changes are which take place as the result of orthodontic treatment. Its universal use is much to be recommended. The future will determine its ultimate value.

It is a well-known human characteristic that once any particular creed is thoroughly indoctrinated into an individual, it takes only the strongest of characters to maintain any individual independence of thought. This fact is thoroughly understood and taken advantage of in both religion and government, and Angle was also fully aware of its value when he demanded at one time, by written agreement of his pupils, that they should have no contact with any ideologies or methods of procedure which conflicted with his own for a period of two years after leaving his tutelage.

That this influence is still actively alive is amply evident by the even more intolerant and dictatorial attitude which is assumed by some of these present-day leaders, and the determination with which recent neophites of this school of thought keep themselves aloof from entering into any discussions which might in any way disturb the undigested theories which have been drilled into their minds.

It may not be too strong to say that Angle never progressed beyond the second stage of education in that he was dominated by ideas of "precision" and "exactness of formulation" which are absolutely fatal in dealing with the inescapable factor of infinite variation on which the whole superstructure of orthodontics is based. Furthermore, his followers in this present generation have not only been busily engaged in propagating their teaching on this basic fallacy, but in isolating themselves and their disciples from viewpoints or influences of a more liberal and broadening nature.

Do not these facts suggest that there is something fundamentally wrong both in the basic concept and the methods employed in this form of approach to the orthodontic problem?

That there are totally different ideas on the subject is amply evident by the wide variety of concepts and methods of procedure which have been successfully employed by others.

Among our own outstanding orthodontists we have Rogers who has stressed the value and effect of myofunctional therapy *without the use of any appliances.* This is the other extreme swing of the pendulum. In Europe where economic and orthodontic standards are totally different from those in our own favored land, simpler methods are mandatory and many very satisfactory results are being obtained by the use of easily constructed removable appliances in which the functional force of occlusion is utilized to the greatest possible advantage. This is a form of mechanical therapy in which it might be well for American orthodontists to take a far greater interest. Far from feeling that these simpler methods are outmoded, it is the opinion of European orthodontists in general that it is some of the intricate, complicated American techniques which are basically ill conceived and have become outdated.

The stupidity with which some adherents of hidebound "systems" or techniques discountenance or condemn the employment of some of the simplest, most useful, and obviously indicated appliances for certain conditions is almost beyond comprehension.

FREETHINKERS

The *only group* in the profession in which there is to be found a reasonable degree of harmony of opinion is in that very select and limited number of top-drawer, successfully practicing clinicians who have reached that third and final stage of education in which *classified ideas* and *relevant techniques* have supplanted all inhibiting exactnesses of formulation.

The men in this group will all be found to be true and sincere individualists without the slightest necessity or desire of exactly copying anybody, but adapting to their natural gifts of creative imagination, intuitive perception, and extensive practical experience the best that is to be found from the many gifted contributions which have been given to the profession over the years by men of vision, artistic feeling, and mechanical genius.

This happy state of development can only be attained by a combination of certain inherent gifts on the part of the operator for the nature of the work, plus a world of practical experience. There are no short cuts. A finished clinician is faced every minute of his working hours by factors, combinations of factors, and reactions which are completely incalculable on a purely scientific basis and must be of necessity be supplemented by a wealth of artistic feeling and insight which the clinician himself can prove that he possesses only by clear demonstrations of his own results. How long do some educators think it takes to produce a man of this type?

In order to be more specific as to some worthy representatives of this type of man, we have only to look at the names of most of those whom the American Association of Orthodontists has had the wisdom to elect as its executive officers in the recent past, actual present, and, thank God, the immediate future. The mark of greatness in men usually lies in the simplicity and unassertive charm of their personalities. Here again we can look for the real explanation in a few more words from Professor Wheeler: "No matter how far the naturalist may specialize in his study of single groups of organisms he is always *keenly*

aware both of the *limitations of his specialty* and of its relation to the *whole realm of living things.* Such *modesty* is not always apparent in the biologist in the strict sense, because he is not engaged in sympathetically exploring the contours of nature, but in determining the extent to which phenomena conform with *his* experimental, metrical and therefore highly rational procedures.''

The soundness of any philosophy depends on the degree with which its principles and techniques are in harmony with the immutable laws of nature, and should be accepted or rejected on that basis.

There are several fundamental scientific principles to which any sound system of orthodontics must of necessity conform.

Practical results are obtained by effecting individual tooth movements, functional changes, and bodily readjustments of the mandible. These should be in harmony at all times, with our already well-established knowledge of histology, anatomy, and physiologic adaptability. In accordance with this knowledge, every tooth movement should be carried into effect by no means other than by gentle, continuous pressures on individual teeth, coordinating these movements in such a way that there may be but a minimum of traumatic occlusion while these movements are taking place between the teeth in the opposing jaws.

Changes in position and growth of the mandible can only be produced where these changes are possible. These are mainly in the region of the temporomandibular articulation, including the neck of the condyles and the ascending sections of the rami. These can only be induced by appliances which permit of such freedom of movement that the functional efforts of the individual at all times may be utilized to the utmost advantage, and not hampered by artificial mechanical interferences.

An orthodontist need hardly go farther than to ask himself these fundamental questions in deciding on several of the most vital questions at issue and the methods and types of appliances he may reasonably employ in dealing with them. The ingenuity of freethinking orthodontists has already provided the necessary implements with which to cope adequately and safely with all these basic biologic problems.

If we are going to get anywhere out of this orthodontic muddle it is about time to face some extremely difficult and somewhat unpleasant facts.

ORTHODONTIC EDUCATION

The future of orthodontics depends upon those who are going to teach it, and in this field we are presented with problems which in some cases are tragic in the face of what is actually happening.

Orthodontics is a combination of science and art, each absolutely essential to the other, and those engaged in its practice having usually a very humanly uneven proportion of each.

The means of acquiring the knowledge necessary to perform a specific service of any kind is the first and most important step in education, and depending upon the *nature* of the problem involved depends the *method* to be employed.

For example, the method a man would employ to become a bacteriologist or an astronomer would be one and the method he would employ to become an

expert tightrope performer, or a bronco-buster, or use any form of physical effort, quite another. The first is predominantly a scientific effort; the other, an artistic effort. There are some subjects which are purely scientific and some purely artistic, and some in which there is a comingling of the two elements. Orthodontics is one of these latter subjects; hence the complication.

The acquisition of any form of art is difficult and laborious. Someone has described the conventional academic course for literature so perfectly that it could be applied word for word for what is unfortunately going on in orthodontics. "The curriculum placed before the would-be writer is staggering in its extensive proportions, even as it is deeply intensive in its qualities. He must know past and present literature. He must be a psychologist. He must understand human nature in theory and practice. And, he must be master of the art of expression in writing. Probably he spends most of his time in this department—words, sentences, paragraphs, metaphors, and all the abundant detail of literary art.

"As a result of much intensive and varied study, he secures a measure of literary scholarship which can by no means be despised. But how far is it of direct service in helping him to become a writer? So far from being a help, it is a hindrance. He has been pursuing the curriculum for a *critic, not a creator.* Hence, when he writes there is no true spontaneity of expression. His mind is crowded with the memories of study and research. *Models dominate him unconsciously.* His thoughts are mainly originated by contact with the thoughts of others. Contact with life itself—generating vital experience—is too little esteemed. A *modicum of experience,* but a whole world of technique; that is his policy, whether or not he knows it. Thus, 'the red blood of primal authorship is not in him. The native hue of life has been sickled o'er by the pale curse of scholarship.' *Technique begins to assume a life of its own.* More than that, *it creates schools of imitation and destroys originality.* Witness the valiant resolve of a young writer to be an artist 'like Conrad.' He will be a *sedulous ape,* at a time when he *ought to be himself.* Besides how can any man be like Conrad without Conrad's twenty-five years on the high seas and in foreign ports?"

Orthodontics likewise has an academic background with a bottomless pit of scientific information containing biologic problems of an insoluble nature. Practical efforts can therefore only be undertaken by spanning these gaps with some well-controlled creative imagination which must invariably be applied to the specific problem of some unique individual. The only place that this clinical judgment can be developed is in the field of actual experience. This is where *the* most difficult orthodontic educational problem lies.

It must never be forgotten that the *sole purpose of dentistry* is to render useful clinical services. These services can be performed only by capable operators who, in addition to the necessary scientific background, must inherently possess and have developed their clinical skills.

Depending on the nature of the dental work to be performed, there are varying degrees of skill and creative imagination necessary. There is a vast

difference in the preliminary preparation necessary to fit a man for the filling of an occlusal cavity in a tooth and that for the double resection of a mandible.

The bulk of clinical operations in the operative and prosthetic fields are, to a great extent, circumscribed in scope, highly mechanical in nature, and can be performed in comparatively short periods of time. The caliber of the work can be promptly appraised and, if unsatisfactory, can be done over without much actual harm or too great a demoralization on the part of the patient. The dental student is given sufficient clinical work reasonably to guarantee that he is not too great a menace to the public by the time he graduates.

The two branches of dentistry which are totally different in nature and vastly greater in their biologic scopes are oral surgery and orthodontics. The oral surgeon is constantly called upon to perform operations of an extremely intricate and dangerous nature in which the life of the patient is often at stake and in which mistakes, if not actually fatal, can produce disastrous permanent results. The work, however, is usually done in quick operations.

Orthodontics consists in making structural, functional, and esthetic changes in the entire genetic pattern of the human masticatory mechanism, an undertaking which is exceedingly complex, comparatively lengthy in its treatment, and containing many problems which cannot be estimated concretely by any known scientific means.

If the practical undergraduate requirements in operative dentistry are counted in the hundreds of operations, what should be the minimum requirement for a fully trained orthodontist where the problems are many times more complex; where can he get the necessary practical training, and how can his abilities or qualifications for the work be judged without some concrete samples of his finished results?

The well-known first "five-year honeymoon" of practice is merely the testing period for the would-be orthodontist to find out if he can get along with his bride. Failures, like birds, have a habit of coming home to roost. If an orthodontist has proved himself a success in practice in the first ten years, he is doing well.

There is actually only one place, and that one so superior to any other that there is no point of comparison, where the invaluable clinical experience so essential to successful practice may really be obtained. That is in a fairly lengthy association with some thoroughly experienced and successful practitioner. The advantages are so obvious that they hardly need recounting. In large practices there are usually several hundred cases in all stages of treatment presenting every type of problem with which an orthodontist may expect to be confronted, and requiring for the continued success of the practice that they be handled efficiently, not only as to actual clinical results, but in the manner in which the patients are treated.

The opportunities for this kind of training are, unfortunately, few and open only to very carefully selected individuals. The only other places are the postgraduate schools. Even in the best-conducted postgraduate clinics only a comparatively insignificant amount of personal clinical experience is possible, and that only over entirely inadequate lengths of time and very unfavorable

circumstances. In some instances there is an appalling callousness with which some clinical patients are treated, and the mechanical rigidity with which the students are obliged to carry out the directions of their instructors; also a shocking ruthlessness in the extraction of teeth and the facial disfigurements which they produce.

DENTAL SCHOOLS

It is unfortunate that it is in the dental schools where the clash of conflicting ideologies and methods of approach to practical problems is confronted, with its most serious difficulties.

Schools in general are predominantly controlled by individuals of the academic type who are, to a great extent, overly impressed with the importance of didactic or theoretical instruction in its proportionate relation to the practical work so essential to the development of clinical judgment.

The deans themselves are in general highly sympathetic with this viewpoint because they usually have attained these positions of importance either from the academic or executive fields of the profession and often have little or no appreciation of the extraordinary combination of qualities of an *intensely practical* nature which go into the make-up of a really successful professional practitioner.

There are branches of dentistry in which pure science is predominant and which are perfectly suited to the individual with the academically trained type of mind who revels, without any clinical responsibilities, within the four walls of his laboratory. These are the natural, full-time professional instructors.

The branches of dentistry of an operative nature which deal with clinical problems require qualities of a totally different nature. They can only be summed up in that subtle, but, nevertheless, very genuine and absolutely essential element known as *clinical judgment*.

There is nothing sadder in the whole field of dentistry to a loyal alumnus than to see men seated in the professorships in any of the branches of operative dentistry who are nothing but inexperienced, ineffectual theorists, and whose clinical abilities are objects of contempt both of the alumni and of the student body.

It is just as illogical to entrust the teaching in the scientific field to men without the necessary scientific qualifications as it is to entrust the teaching in the practical fields to those who have not proved themselves finished clinicians. This presents a very serious and obvious difficulty.

Successful practitioners in the true professional sense of the word always have their time fully taken up with their private practices and the time they devote to making original contributions to the profession. This, together with the usually satisfactory financial returns and freedom of action which go with it, makes it difficult to induce men of this type to take the financial loss which giving up of profitable time involves, and to assume the laborious efforts necessary for the preparation of lectures, directing clinics, and the numerous worri-

some details which cannot be handled in an institution with the efficiency and dispatch with which they can in a well-organized office which is run on sound business principles.

No man of that caliber will be foolish enough to give up his entire time to that purpose, so part-time professors are the only logical solution in all operative departments, particularly in oral surgery and orthodontics, where the post-graduate time necessary to develop capable clinicians is so extensive and laborious and requires special gifts on the part of the men who have the ability to survive.

No orthodontic department can possibly be well conducted except under the complete, unhampered direction of a thoroughly experienced clinician who not only possesses the originality and executive ability to have made a success of his own practice, but who also has a corps of experienced associates of his own selection who share his ideas and are willing to cooperate in complete cordiality with him. Some of the most efficient undergraduate and postgraduate departments in oral surgery and orthodontics in the country are being run under these conditions.

These ideal conditions unfortunately do not obtain in many institutions due to several very important factors, one of which is the power that is invested in deans in deciding on the personnel of the teaching staff.

If the dean of the school is also the professor of orthodontics (which is the case in some instances), then the type of the instruction, together with everything that goes with it, will for "weel or for woe" be a reflection of the basic philosophy and clinical ability of the head of the school himself.

Deans, however, are not often orthodontists, and confess very sincerely and frankly that they know nothing about the subject. They are, therefore, in positions to make or wreck the departments, depending on the advice they are willing to listen to and the degree to which they inject their own personal opinions and prejudices in the matter. This can have some unfortunate results.

If a dean who may also be an orthodontist is convinced that there is *only one entirely superior* "system" which should be taught in, let us say, a postgraduate course of two years, and this type of instruction is drilled uncompromisingly into the minds of the students, then the result will be a crop of young, conceited, "sedulous apes," intolerantly prejudiced for years to come, if not for life, who will be willing to jump through hoops at the bidding of their masters, which, whether they know it or not, is exactly the intention of those who have indoctrinated them. If teaching does not engender and promote the desire and ability of the student to think and act for himself, it has defeated its prime purpose.

If a dean who is not an orthodontist has, even with the best intentions in the world, been persuaded that there is only *one* entirely superior "system" which should be taught in the school which he directs and bends all his efforts to establish that kind of instruction, an intolerable situation can only result if there happen to be other members in the department with more liberal ideas.

If a dean entrusts the destiny of the department to a head whose professional prominence is mainly the result of a very active political career, and

whose ideas on orthodontics are but the prejudiced remains of an inefficient method of treatment which has become obsolete in the eyes of the entire profession, the results can only be what might be expected.

There are deans who have the wisdom to appoint as heads of departments men of well-known clinical ability who, with open and liberal minds, recognize the obvious merits of several methods of treatment which can be incorporated into their teachings and clearly demonstrated in the work in the clinics.

The younger men who are entering the profession are coming mainly from these postgraduate schools with all the enthusiasm of youth, but highly influenced by all the prejudices or openness of mind with which their teachers have imbued them. Regardless of where they may come from, there is a desperate lack of clinical experience in all of them.

Until some way is found to overcome this glaring educational deficiency, the specialty at large will suffer from the well-intentioned, but unfortunate, errors of judgment which these young, inexperienced beginners are bound to make until they "find" themselves.

We are still very far from arriving at a sane, logical, and practical solution to our orthodontic problems. Anyone who is already completely satisfied with the methods he is employing is simply suffering from cerebral arthritis or premature mental senility. It is obvious that the hope of the future lies in openness of mind which will eventually find a way of adapting *principles* of procedure of *universal application* which will be applicable to *infinite variation* and into which the *merits* of *all* the different systems will eventually find their useful and correct place. The game is on and *someone* will some day carry the ball and *do this.*

In the meantime, let us, as Evelyn Waugh said in a recent issue of *Life,* "Keep from dogmas which divide good citizens, and cleave to generalities which unite them."

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ORTHODONTIC CONSIDERATIONS IN THE SURGICAL MANAGEMENT OF DEVELOPMENTAL DEFORMITIES OF THE MANDIBLE

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DURING the past fifty years there has been great interest in the surgical correction of developmental deformities of the mandible. In planning these operations numerous techniques have been employed for determining the angulation of the cuts and the amounts of bone to be removed. Many methods have been employed for fixation of the parts of the mandible during the course of healing following surgery.

For several years we have been working on the problems involved in the surgical management of developmental deformities of the mandible. In our early experience all operations were performed through the rami of the mandible. Because of numerous complications with this method the operation is now performed through the body of the mandible. The part of the orthodontist in the correction of such cases includes the following: (1) determination of the size and shape of the bone segments to be removed; (2) construction and management of appliances in preparation for surgery and during healing; (3) maintenance of pre- and postoperative records; (4) pre- and postoperative orthodontic adjustment if indicated.

Some patients presented for surgery have neglected oral health to such an extent that only a few usable teeth remain. These teeth and other oral tissues should be put into the best possible state of health. Permanent work is done for those whose teeth will be retained after healing, and temporary work for those who will have dentures after surgery.

The types of cases that may be successfully corrected by surgery are those too extreme to be managed by orthodontic treatment alone. These are extreme types of:

1. Mandibular prognathism.
2. Mandibular deficiency.
3. Nonhabit open-bite.
4. Lateral mandibular displacement.
5. Various combinations of the above.

DETERMINATION OF THE SIZE AND SHAPE OF BONE SEGMENTS TO BE REMOVED IN PROGNATHIC, OPEN-BITE, AND LATERAL DISPLACEMENT CASES

For each patient, two sets of accurate dental models are constructed. These models are occluded and trimmed, except for minor changes, according to accepted orthodontic standards. In order to occlude the models properly a wax

bite is taken. This wax bite must register the patient's centric position. If there is any doubt about the patient's centric position, it is wise to make use of a functional mandibular retruder. If the bite is deep or there is no occlusal contact of maxillary and mandibular teeth, the patient should bite on wax (in centric) until the mandible closes only enough to establish an optimal depth of bite. It is important that the models include all posterior teeth and edentulous areas. In trimming the mandibular models, the sides are trimmed parallel with the center of the crest of the mandibular alveolar ridge and not parallel with a line contacting the buccal surfaces of the posterior teeth, as is usually done.

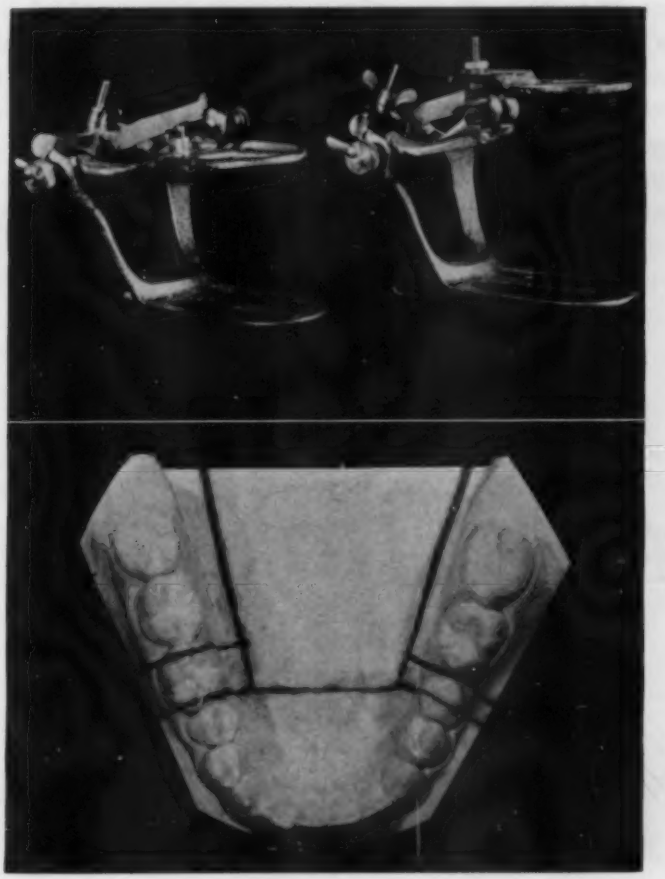
One set of the occluded dental models is mounted on an articulator in the following manner:

The sides of the lower model are slightly beveled downward and a thin coating of petroleum jelly is rubbed on these sides and the base. A framework for the lower model is constructed by setting it one-eighth inch deep into a one-half inch layer of freshly mixed dental stone. When the stone has set the model is removed and the framework is trimmed so that it is flush with the posterior surface of the model but extends one-eighth inch beyond the other borders. The framework is left at least three-eighths inch thick and is trimmed so that its base is parallel with the base of the mandibular model. Mount the models on an articulator so that the upper model is attached to the upper part of the articulator and mandibular model framework is attached to the lower part of the articulator. An inexpensive articulator (Fig. 1, *A*) which can be adapted to varying heights depending upon the height of the dental models being used is best.

The lingual portion of the articulated mandibular model is cut out with a simple jig saw. By marking and shifting the mandibular model posteriorly it is possible to determine the approximate size of the bone segments to be removed. The mandibular first molar region is the site usually chosen for the bone removal, but if edentulous areas are present in the second premolar or second molar regions these latter sites may be used if the space is adequate. If the third molar region is edentulous, the bone is usually removed from the first molar region because technically it is easier[1] and allows retention of the mandibular second molar, which aids in preventing bite closure of the posterior segment.

A saw is used to cut the models and the cuts are made at right angles to the occlusal plane and perpendicular to the sides of the mandibular model. Model segments, which are at least 2.0 mm. narrower than was approximated previously, are removed with a saw, usually from the first molar regions (Fig. 1, *B*). In moving the three parts of the mandibular model into the best possible relationship with the maxillary model, the posterior segments of the mandibular model usually need to be moved lingually and the direction of movement, in general, is perpendicular to the sides of the lower model. As a guide to this lingual movement, a line is drawn on each side of the top of the mandibular framework at right angles to the side of the framework (Fig. 2). The posterior segments not only move lingually, but also rotate slightly with the head of the condyle as the center of rotation. In extreme cases the mandibular posterior segments at operation have been moved lingually as much as 10.0 mm., and in no instance has a single patient complained of discomfort in the region of, or interference with the function of, the temporomandibular joints.

A.



B.

Fig. 1.—*A*, A simple articulator that is adjustable to any height by means of a bolt extension.

B, Preliminary sectioning of the mandibular model.

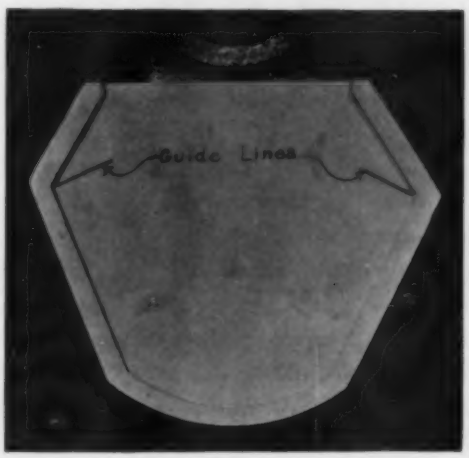


Fig. 2.—Mandibular model framework showing posterior segment guide lines.

In some cases as much as 2.0 mm. will need to be trimmed from the occlusal surfaces of one or more teeth in order to permit placement of the mandibular segments into the most desirable occlusion. The amount of tooth trimming is accurately measured and outlined on the teeth of the models so that this same amount can be trimmed from the patient's teeth prior to surgery. If too much trimming is necessary it is advisable to move or extract the teeth involved. The maxillary lateral incisors have been the teeth which most frequently interfere with the proper positioning of the anterior segment of the mandible. With a file or knife the cut surfaces of the mandibular model are trimmed until they come into tight surface contact when the mandibular segments are positioned into the desired relationship with the maxillary teeth.

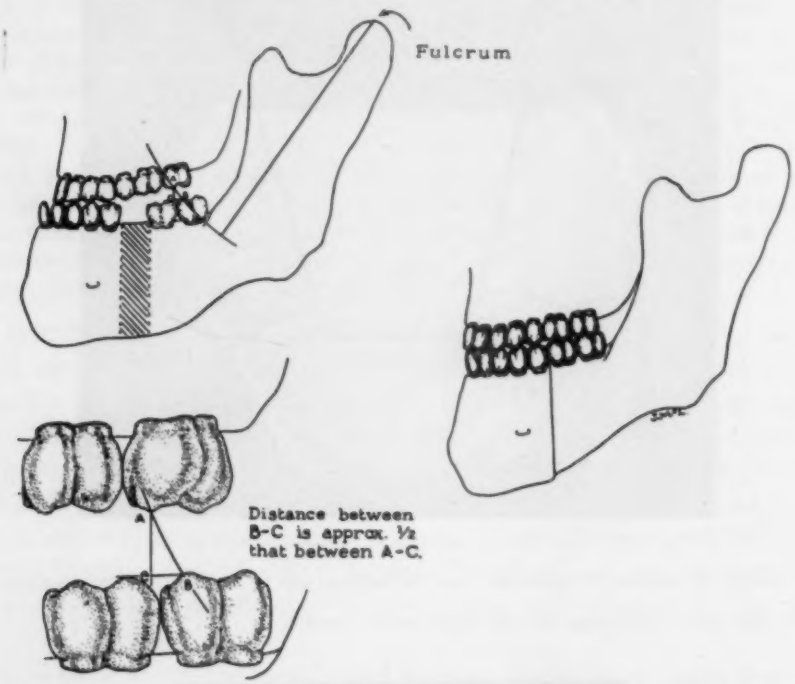


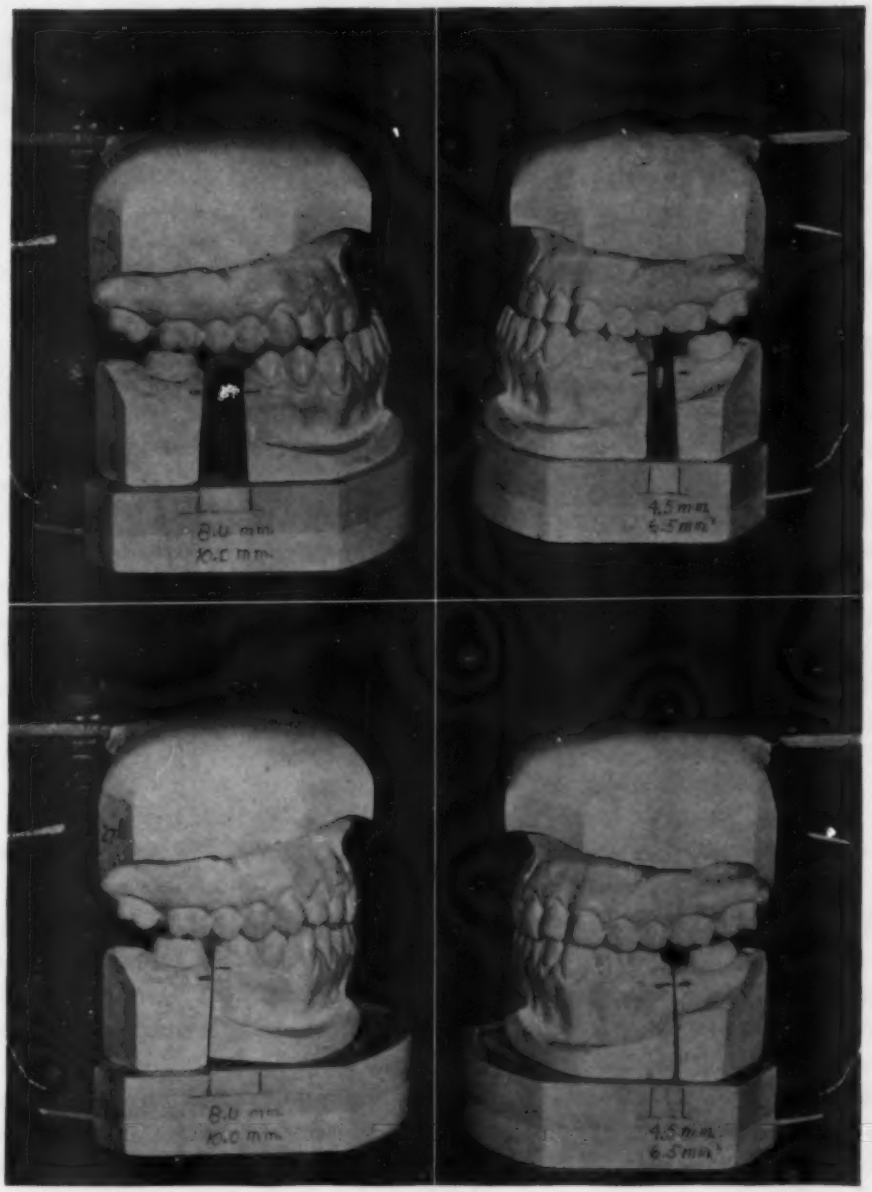
Fig. 3.—The posterior segment moves forward the distance *B-C* when closing the open-bite distance *A-C*.

Occasionally one or both of the posterior mandibular segments is in open-bite relationship with the upper teeth. It is desirable to close this posterior open-bite, but it is important to note that the posterior segment moves forward approximately one-half of the distance that it moves upward when being brought into occlusion with the maxillary teeth (Fig. 3). In some cases it may be necessary to cut a depression into the upper surface of the mandibular framework in order to position the parts of the mandibular model properly without changing the vertical relationship of the maxillary model. Changing of the vertical relationship of the maxillary model as set on the articulator will greatly increase the difficulties of calculation and is inadvisable.

After the parts of the mandibular model have been properly occluded with the maxillary model and the cut surfaces are in tight proximal contact, they are

then returned to their original positions within the mandibular framework. The size of the spaces between the anterior and posterior parts of the mandibular model is the size of the bone segments to be removed from the body of the

A.



B.

Fig. 4.—*A*, A case showing the size and shape of mandibular bone segments to be removed from the right and left sides. Note the pencil marks which represent the location of the superior and inferior borders of the mandible in these regions. The top number inscribed on the side of the mandibular model framework is the width of the removable segment at the superior border of the mandible and the bottom number is the width at the inferior border of the mandible.

B, The mandibular model segments are positioned in the most ideal relationship with the maxillary model.

mandible (Fig. 4, *A*). The width of each space should be measured approximately 2.0 mm. below the crest of the alveolar ridge and at a point approximately 25.0 mm. below the crest. These two measurements represent the width of the removable bone segment at the superior and inferior borders of the mandible. Palpation and lateral-jaw x-rays will aid in the determination of the height of the body of the mandible at the operative site. The superior and inferior widths of the bone segments to be removed are inscribed on the respective sides of the mandibular model framework for permanent reference. The mandibular segments are placed into the desired relationship with the maxillary model and wax is used to hold them firmly. The articulator, with its repositioned segments, is used in the operating room as a guide during the shifting of the mandibular segments at the time of surgery (Fig. 4, *B*).

DETERMINATION OF THE ANGULATION OF CUTS IN EXTREME MANDIBULAR RETRUSION CASES

A method for the correction of such deformities has been outlined by Dingman.[1] It was possible to advance the anterior segment 10.0 mm. without causing injury to the inferior alveolar nerve. The relationship of the horizontal cut to the occlusal plane is extremely important in controlling the depth of bite of the anterior segment. It is very important to make the horizontal cut parallel to the occlusal plane in order to avoid changing the depth of bite as the anterior segment is moved forward. When the horizontal cut is parallel to the lower border of the mandible, the slope usually is downward and forward in relation to the occlusal plane. Consequently, when the anterior segment is moved forward, the depth of bite is decreased and may result in an anterior open-bite which would require special treatment for correction. In two of four cases a slight anterior open-bite of this type resulted. Here it was surgically impossible to make the horizontal cut parallel to the occlusal plane. The open-bite in these cases was corrected by trimming the occlusal surfaces of the posterior teeth.

UNUSUAL CASES REQUIRING SPECIAL CONSIDERATION IN THE DETERMINATION OF THE AMOUNT OF BONE TO BE REMOVED

When no posterior teeth are available to aid in the stabilization of the posterior segments following surgery, particular care needs to be given to the determination of the size and shape of bone segments to be removed. The posterior segments of the mandibular model are lined up with the anterior segment so that the crest of the alveolar ridge is continuous.

When the anterior area is edentulous, the mandibular anterior segment is positioned so that its ridge is in the same vertical plane as the ridge of the anterior part of the maxillary arch. The positioning of mandibular segments just described best prepares the patient for future partial or full dentures.

When the mandibular anterior teeth are extremely retruded, it usually is advisable to position the anterior portion of the mandibular model so that the lower anterior teeth are completely lingual to the upper teeth. This positions the ridges in proper occlusal relation and permits orthodontic treatment or dentures, as the individual case merits, after healing.

When the maxillary anterior teeth are retruded, it usually is advisable to position the anterior portion of the mandibular model so that the ridges again are in proper vertical relation even though this may leave the upper anterior teeth lingually positioned relative to the lower anterior teeth. When this occurs correction may be made subsequent to healing as indicated previously.

CASES REQUIRING PRE- AND/OR POSTOPERATIVE ORTHODONTIC TREATMENT

As stated in a previous section, it frequently is necessary to resort to considerable trimming of occlusal contacts of maxillary and mandibular teeth in order to permit the optimal positioning of the mandibular segments. Infrequently it is advisable to extract teeth to relieve occlusal interference. Occasionally it is advisable to resort to preoperative orthodontic treatment in order to relieve extensive occlusal interference. In our series of cases, it has been found that retrusion of the maxillary incisors often interferes with the proper positioning of the mandibular anterior segment. Some cases require labial movement of these teeth prior to surgery. Usually it is advisable to carry out orthodontic treatment after, rather than before, surgery since the surgery and fixation appliances occasionally cause tooth movement which requires correction.

TYPES OF FIXED APPLIANCES

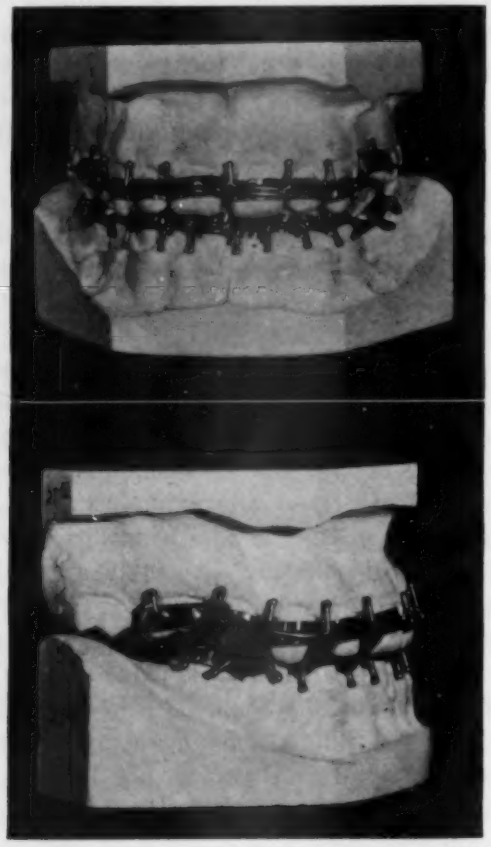
The appliances are made of precious metal because the material is easy to handle and very strong. Seamless bands are used on the molar teeth, pinch bands, 0.004 inch thick, on the premolars, and pinch bands, 0.003 inch thick, on the anterior teeth. It is not necessary to make bands for all teeth. If there is a full complement of teeth, then approximately half of them need to be banded. If many teeth are missing it is advisable to construct bands for all remaining teeth. When two molars are present in a mandibular posterior segment, it usually is necessary to band only one.

A compound impression is taken of each arch with bands in place for construction of work models. The labial arch is made of 0.040 inch precious metal wire and is soldered to each band. To make the cementing problem less difficult, the upper and lower appliances are made in sections (Fig. 5, *A*). The arch wires of adjacent sections overlap and are ligated together for greater stability. The upper appliance usually is divided into two or three sections and the lower anterior appliance generally is made in two sections. If there are only a few teeth to be banded then it is advisable to make each appliance in a single unit. Spurs constructed of 0.035 inch wire are soldered to the arch wires between bands for the attachment of intermaxillary elastics or ligatures. If banded teeth are in proximal contact, then only one spur is placed between adjacent bands, but if banded teeth are widely spaced, spurs are spaced approximately three-eighths inch apart. The end of each spur is balled before being soldered to the arch wire. The spurs are soldered directly to the bands of the mandibular posterior segments.

It is advisable to solder two spurs to each band of the posterior segments. The mesial spur is directed distocervically, while the distal spur points cervically. The most posteriorly positioned spur on the mandibular anterior segment is also

soldered directly to the last banded tooth of the anterior segment and is directed mesiocervically. These spurs are sloped for attachment of elastics and ligatures from the anterior to the posterior segments and from the anterior and posterior segments to the maxilla (Fig. 5, *B*). The elastic tension from a molar tooth in the posterior to the anterior segment may cause mesial tipping of the molar. If the model calculations and surgery have been very accurately performed, there need be very little traction between the anterior and posterior segments, thus minimizing undesirable molar tipping.

A.



B.

Fig. 5.—*A*, Upper and lower appliances are made in sections to make the cementing problem less difficult. Adjacent sections overlap and are ligated together for greater stability. *B*, The spurs of the anterior and posterior segments that are adjacent to the operative site are sloped so that elastics and ligatures may connect the two segments.

In some cases the occlusion of the teeth of the mandibular posterior segments with the maxillary teeth is so unstable that intermaxillary traction causes the posterior segment to slide bucally or lingually. To prevent the posterior segment from sliding lingually, it is advisable to solder an occlusal extension to a lower molar band of the posterior segment so that the extension contacts the buccal surface of a maxillary tooth. To prevent the posterior segment from sliding bucally, an occlusal extension is soldered to an upper posterior band so as to contact the buccal surface of a tooth in the mandibular posterior segment.

The buccal-lingual relationship of the lower posterior segments is determined largely by the ligature which unites the anterior and posterior segments and which is placed near the inferior border of the body of the mandible. In some cases this inferior border flares laterally in the region distal to the first permanent molar. If this flaring is present, the ligature mentioned may cause the mandibular posterior segment to be shifted too far lingually, thus causing

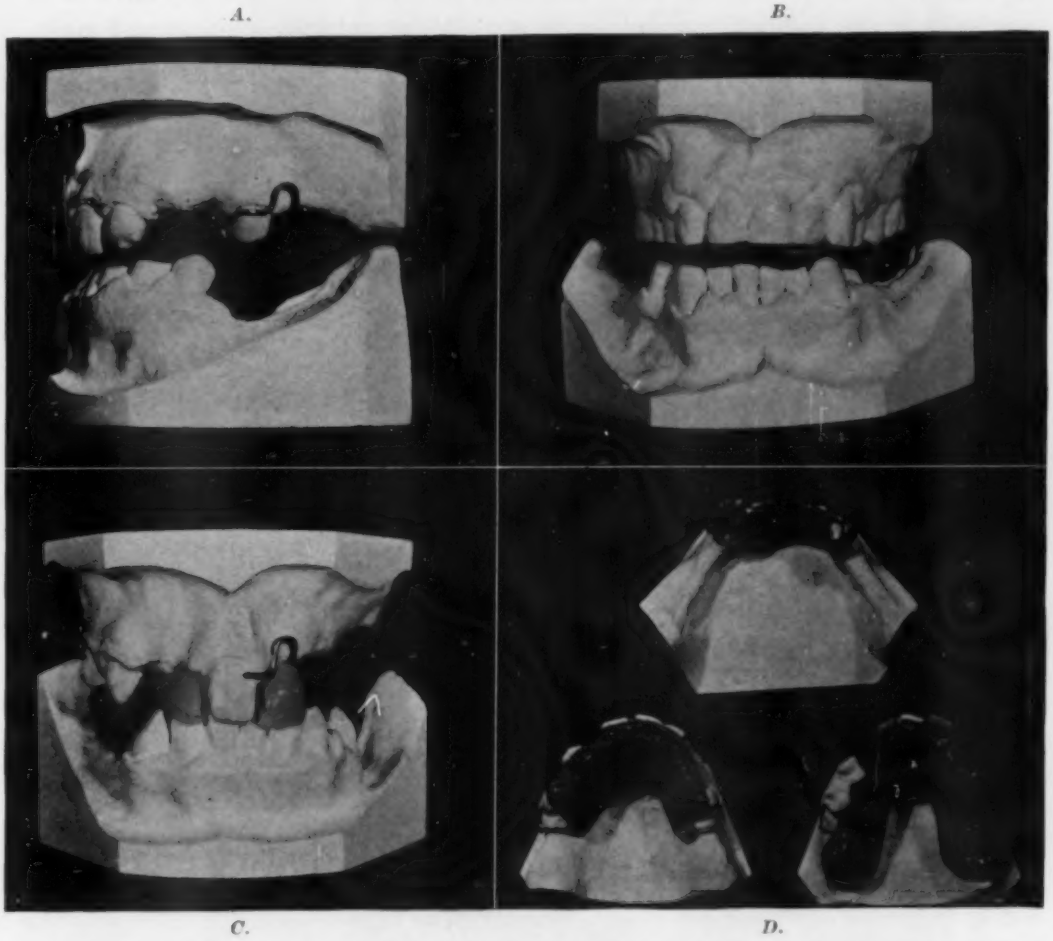


Fig. 6.—*A*, A maxillary acrylic splint is used to stabilize the mandibular anterior segment and maintain the correct vertical dimension when the mandibular anterior teeth are retrusive.

B, A simple occlusal splint used to stabilize the mandibular anterior segment.

C, Denture teeth were attached to this maxillary splint to simulate a partial denture worn by the patient prior to surgery. Following healing new upper and lower partial dentures were constructed.

D, Occlusal views of splints shown in Fig. 4, *A*, *B*, and *C*.

improper occlusion of posterior teeth. To prevent excessive lingual movement of the posterior segment in cases in which flaring is present, it is advisable to solder occlusal extensions onto the posterior segment bands as described in the preceding paragraph. The wire ligature placed near the lower border of the body of the mandible at the time of surgery need not be tightened excessively. In an attempt to get the lateral surfaces of the anterior and posterior segments to fall into one plane, the occlusal relationship may be distorted.

REMOVABLE ACRYLIC SPLINTS

Approximately 30 per cent of our cases have required removable acrylic splints. These splints are used when there is an unstable occlusal relationship of the mandibular segments with the maxillary teeth, and also when it is desirable to maintain a space between the mandibular teeth or ridge and the maxillary teeth or ridge. When the mandibular anterior teeth are retrusive it is advisable to use a splint to stabilize the mandibular anterior segment and maintain the correct vertical dimension (Fig. 6, *A*). If the maxillary anterior teeth

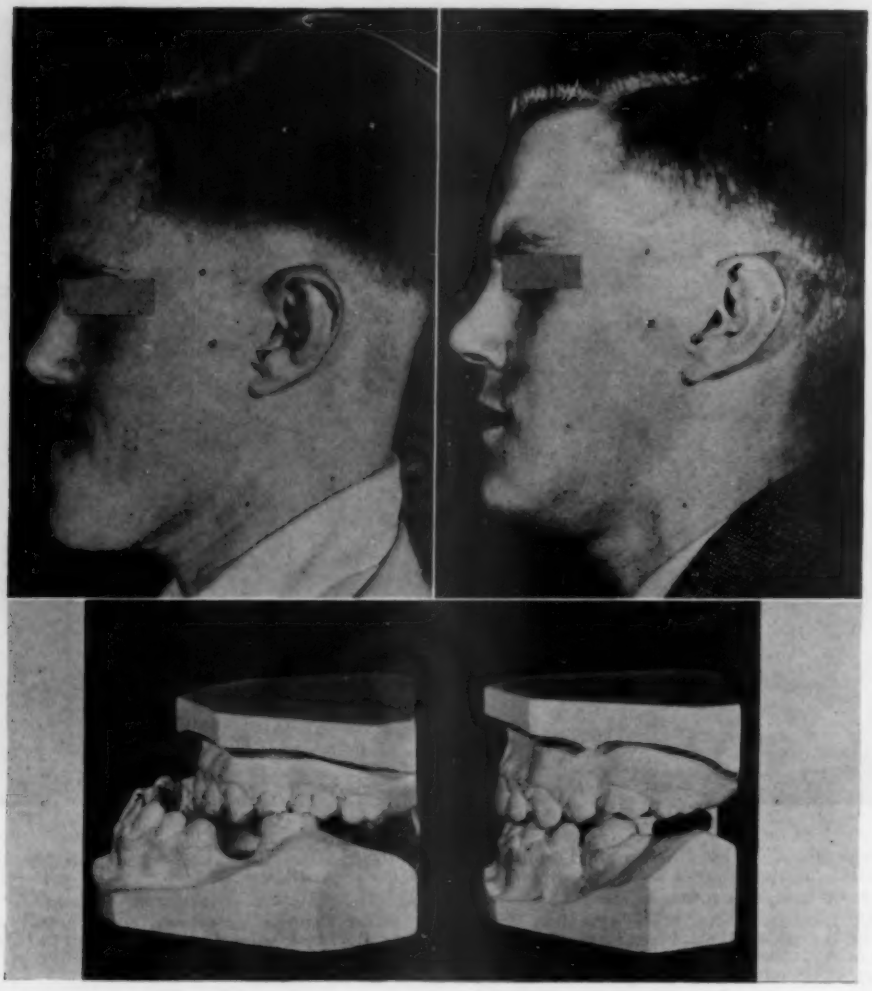


Fig. 7.—Correction of mandibular prognathism.

are protrusive an acrylic splint is advisable for the same reason. When a maxillary posterior region or a mandibular posterior segment is edentulous, the pull of the masticatory muscles may cause upward displacement of the proximal mandibular segment if a splint is not used. In some cases the occlusion of the mandibular teeth with those of the maxilla is so unstable that during healing the mandibular segments may shift into undesirable positions. With such cases

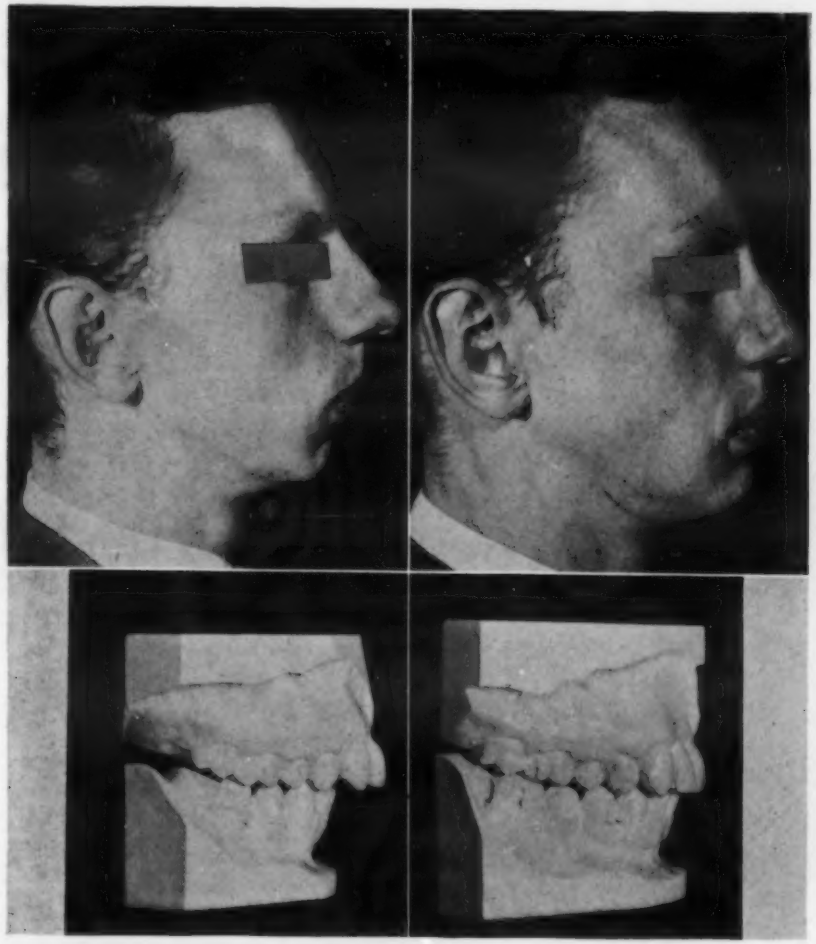


Fig. 8.

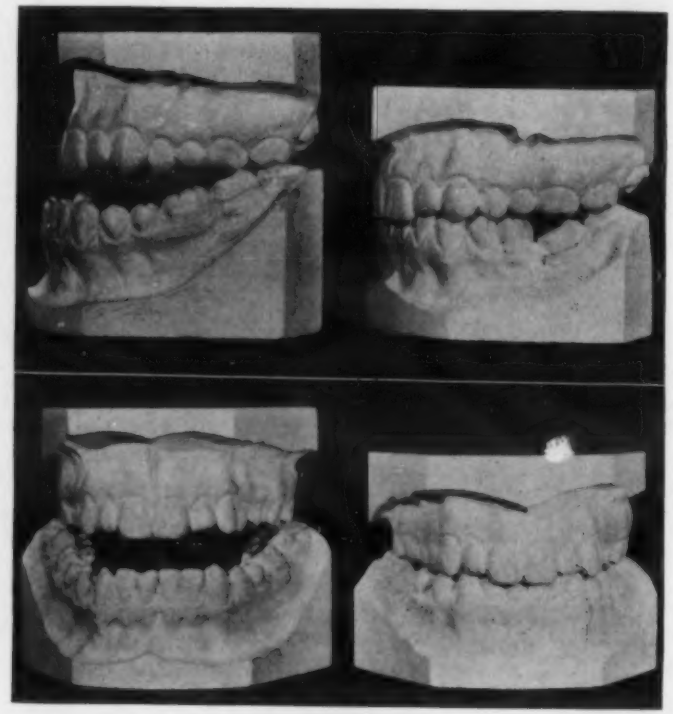


Fig. 9.

Fig. 8.—Correction of mandibular deficiency. (From Dingman, R. O.: Plast. & Reconstruct. Surg., 1948.)
Fig. 9.—Correction of prognathic open-bite.

Fig. 10.—Correction of a case combining mandibular prognathism and lateral displacement. (From Dingman, R. O.: Plast. & Reconstruct. Surg., 1948.)

the use of a simple occlusal acrylic splint will prevent shifting (Fig. 6, *B*). The placing of acrylic splints frequently fills all spaces between upper and lower teeth, making it difficult for a patient to obtain sufficient nourishment while on the liquid diet. In such cases a few holes drilled through the acrylic in areas that will not interfere with the function of the splint are of value.

SPLINT CONSTRUCTION

The splints are placed over the fixed appliances. It is necessary to construct upper and lower work models from impressions taken after the fixed appliances have been cemented into position. The splint is usually more stable when attached to the maxillary than to the mandibular teeth. The construction is similar to that of a regular Hawley retainer except for the following differences: (1) the work model is constructed with appliances in place; (2) the wax is built up so that it occludes with the lower teeth when the upper and lower work models are oriented exactly as designated by the sectioned models mounted on the articulator. In cases in which the mandibular posterior segment is edentulous, it is advisable to prevent upward displacement by means of a maxillary acrylic splint extended downward in the edentulous area to within approximately 2.0 mm. from the mandibular ridge. The mandibular surface of this acrylic extension is undercut and built up with compound, so that it contacts the mandibular edentulous area. After the mandibular segments have been repositioned during the second-stage operation, the compound of the maxillary splint is softened and adapted to fit the shortened mandibular edentulous area. In a few cases denture teeth have been attached to maxillary acrylic splints to simulate partial dentures worn by patients prior to surgery (Fig. 6, *C*).

Illustrations of various types of mandibular deformities are shown in Figs. 7, 8, 9, and 10.

SUMMARY

The orthodontic considerations in the surgical management of developmental deformities of the mandible are discussed.

For the determination of the size and shape of the removable bone segments it is advisable and usually necessary to mount accurate orthodontic models on an articulator. A framework is constructed for the mandibular model so that its parts can be returned to their original relationship to the maxillary model after sectioning.

The mandibular segments are shifted into the most ideal relationship with the maxillary teeth. This shifting usually necessitates some removal of occlusal interference by trimming, extraction, or movement of teeth.

In the correction of extreme mandibular retrusion cases it is very important to make the horizontal cuts parallel to the occlusal plane if no change in the depth of bite is desired.

When the posterior areas of the mandible are edentulous, the posterior segments of the mandibular model are lined up with the anterior segment so that the crest of the alveolar ridge is continuous. When the anterior area is edentulous, the mandibular anterior segment is positioned so that its ridge is in the same vertical plane as the ridge of the anterior part of the maxillary arch.

The appliances are made of precious metal because the material is easy to handle and very strong. To make the cementing problem less difficult, the upper and lower labial appliances are made in sections. The mandibular posterior segments are stabilized by soldering occlusal extensions to maxillary or mandibular molar bands.

Removable acrylic splints are used when there is an unstable occlusal relationship of the mandibular segments with the maxillary teeth, and also when it is desirable to maintain a space between the mandibular teeth or ridge and the maxillary teeth or ridge.

It is very important that the surgeon and the orthodontist work closely together in treating such developmental deformities of the mandible.

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SOME THOUGHTS ON CEPHALOMETRICS AND ANCHORAGE

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IN THE opinion of an ever-increasing number of practicing orthodontists cephalometrics has become a necessary aid to orthodontic diagnosis and prognosis. Originally it was considered a research tool, but now some feel that to get along without this aid would be difficult; many others, not so familiar with it, are seemingly interested in what its contribution to our specialty is. It is apparent, however, that while some feel the need for improved or additional diagnostic aids, others consider them unnecessary and state that diagnosis has now become exceedingly simple for them. These are the orthodontists who base their diagnosis on the upright position of the mandibular incisors over medullary bone.[1] Actually, of course, these orthodontists use other criteria upon which to base their diagnosis but, unfortunately, stress this relationship of the mandibular incisors to such an extent that some, especially among the younger men, are likely to accept it as the only true basis for diagnosis.

Undoubtedly this relationship of the mandibular incisors to their basal bone is an important consideration in diagnosis, especially if there can be agreement as to when the relationship is normal or acceptable. The cephalometric profile roentgenogram is one of the best means of determining what this relationship is for a given patient. In fact, it is possible not only to determine the angle of inclination of these teeth with respect to the basal bone but also to measure or observe their position relative to the menton or bony chin point.[2, 3, 4] For example, it has been found that these lower anterior teeth may be positioned well forward on the basal bone (Fig. 1), or well back (Fig. 2), and at the same time be vertical with respect to the mandibular base plane.

If the mandibular teeth are well forward and the incisors vertical, the maxillary incisors may have their apices well back but of necessity have a pronounced labial inclination if their crowns simulate the customary labial relationship to the mandibular incisors. This is the type of bimaxillary dental protrusion illustrated in Fig. 1. Another type is that in which both the maxillary and mandibular incisors have their apices well positioned over basal bone but have a decided labial inclination (Fig. 3). A third type has the mandibular incisors upright or vertical with respect to the basal bone but the gonial angle is so obtuse that these teeth appear to have a pronounced labial inclination which is coupled with an actual emphasized labial inclination of the maxillary incisors (Fig. 4).

These illustrations should indicate that if they are actually bimaxillary protrusions, they are not identical or even similar, and hence that inclination of the mandibular incisors alone would not serve as a complete diagnosis or

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Fig. 1.—Is this normal occlusion or a type of bimaxillary protrusion? Mandibular incisors vertical and well forward in relation to the mention. Pronounced labial inclination of maxillary incisors.

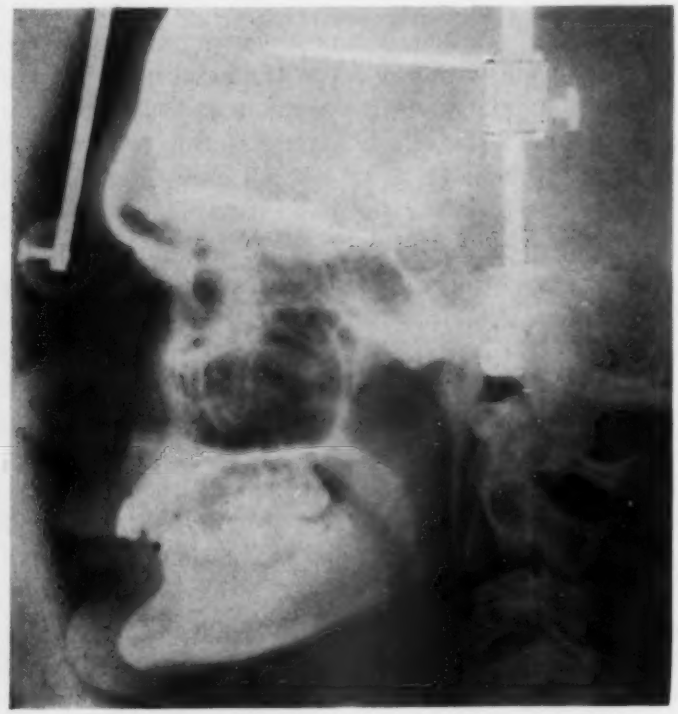


Fig. 2.—Class II, Division 1 (Angle) dentofacial deformity. Mandibular incisors vertical but well back in relation to the mention (bony chin point).

analysis of the deformity. There would be some question also as to which of these could be considered consistent with facial type rather than a type of bimaxillary protrusion.

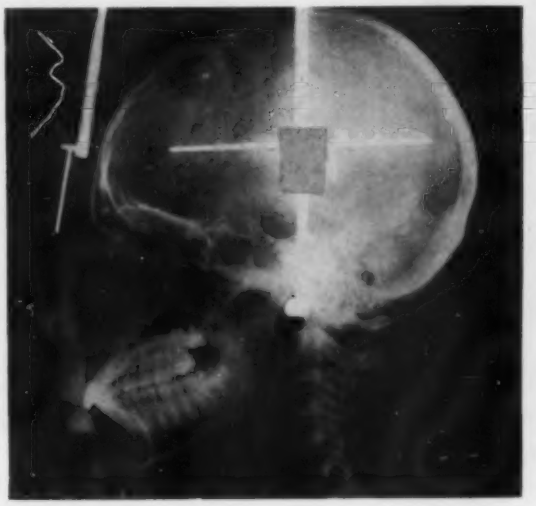


Fig. 3.—Bimaxillary protrusion. Maxillary and mandibular incisors have apices well positioned over basal bone but have a decided labial inclination.

Fig. 4.—Is this a type of bimaxillary protrusion? Mandibular incisors are upright and well positioned over basal bone but appear to have a pronounced labial inclination due to obtuse gonial angle. Maxillary incisors have pronounced labial occlusion.

Orthodontists not familiar with the use of the cephalometric roentgenogram as an aid to diagnosis and prognosis often hesitate to employ it because they feel that the method is too complicated. Those who feel this way might well start by simply observing the roentgenograms and mentally comparing the

angular relationships and the size of the parts with what they consider normal, much as they would make a direct appraisal of the patient. The advantage of the roentgenogram is that many of these relationships, especially of the facial skeletal pattern and of the denture and soft tissues to it, are much more apparent than in direct examination of the patients or their photographs (Fig. 5).[5]

It is also possible to place a transparent Celluloid draftsman's triangle over the profile roentgenogram with the base indicating the Frankfort plane and the right angle side dropping down vertically from the orbital point simulating the orbital plane. By this method anteroposterior prominence or deficiency of the denture, maxilla, and mandible may be discovered, especially if a standard such as Broadbent's[6] is used as a means of comparison (Fig. 6). The triangle may also be used to determine the position and inclination of the mandibular incisors with respect to the menton and mandibular base plane. To do this the base of the triangle is placed along the base of the mandible with the right angle side upright passing through the root apex of the incisor or tangent to the labial surface of the crown. The gonial and Frankfort-mandibular angles may simply be judged or actually measured.

For those who wish to delve deeper into the analysis of the cephalometric roentgenograms, measurement of angular relationships or of actual size of parts may be carried out. Some standards that have been published by various investigators may be used for comparison, but care must be exercised in their use until they are proved valid and until their application or value in the analysis of the individual patient is demonstrated.

Downs,[7] for example, compiled a table of measurements of nine facial characteristics selected, supposedly, because of their clinical usefulness. These are based on a study of 20 individuals possessing excellent occlusions. Five of these measurements assess the skeletal facial pattern independent of the dentition, while four indicate the relationship of the skeletal pattern to the denture. All of these relationships are expressed in angular degrees except one, which is in millimeters. The use of angular degrees is based upon the fact that they supposedly do not change with age and are perhaps not altered by differences in actual size of individuals who possess good occlusions and well-proportioned faces. To use this method in appraising an individual case, these nine different values are measured on the profile cephalometric roentgenogram of the patient, and then each value is compared with the group average and with the maximal and minimal extremes as found by Downs in his study. In this way it is easily demonstrated to what extent the facial pattern of the individual patient is the same as, or different from, facial patterns possessing sufficient harmony to make possible acceptable occlusal relationships.

Incidentally, the problem appears to center around what structures and structural relationships are amenable to change by orthodontic treatment. Although it is claimed that the angular relationships of the bony skeletal facial pattern cannot be changed, it is often possible to change the relationship of the denture or the mandible to the facial skeletal pattern sufficiently to produce marked improvement. It is also true that acceptable dentofacial relationships

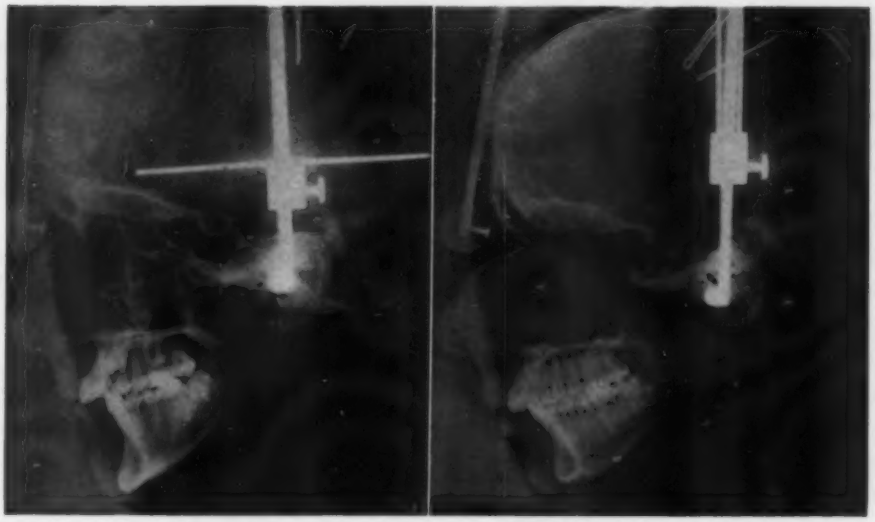


Fig. 5.—Two 14-year-old girls with similar dental deformity (Class II, Division 1). The dissimilarity in the relationship of the mandibular incisors to the bony chin point and the soft tissue profile to the underlying dental and osseous structures is more easily determined in the roentgenograms than by direct examination of the patient. (From Higley, L. B.: J. Am. Dent. A. 26: 1479, 1939.)

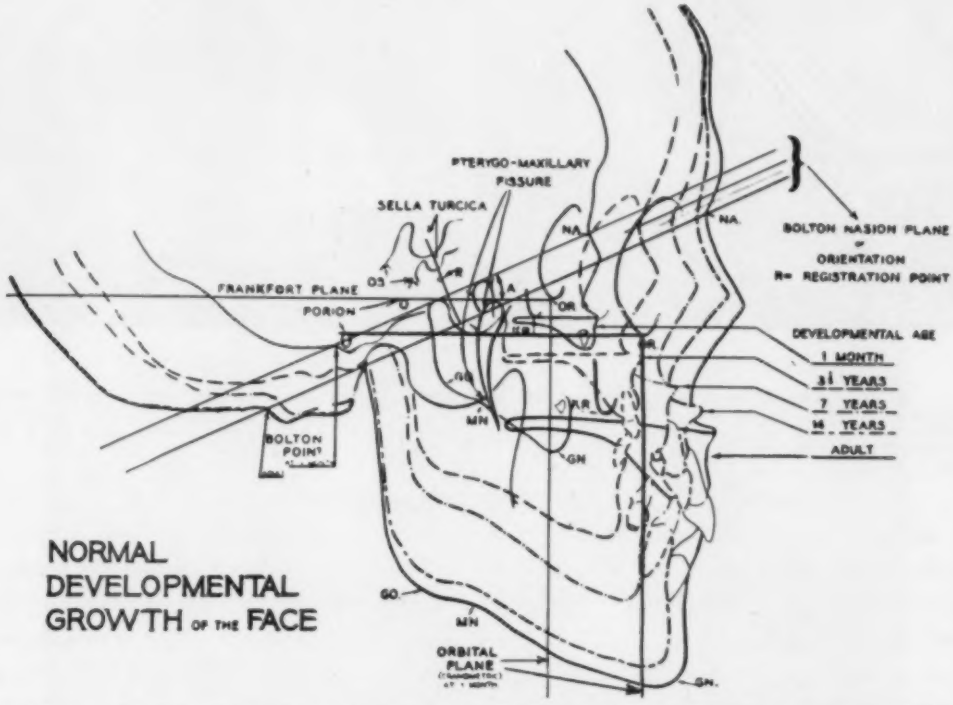


Fig. 6.—This standard from the Broadbent-Bolton study may be used for comparison of the anteroposterior and vertical relationships of the dentofacial structures as found in the profile roentgenogram of the individual patient. (From Broadbent, B. H.: Angle Orthodontist 7: 194, 1937.)

can exist in untreated cases even though the basal bone shape is not good. For example, the skull in Fig. 7,*A*[11] illustrates an acceptable occlusion in an untreated case although the mandible has a comparatively obtuse gonial angle and a short ramus. The roentgenogram in Fig. 7,*B* portrays a patient with a very similar mandibular bone shape but with an Angle Class II, Division 1 dental deformity. The problem in the latter case is to decide what structural relationships can be altered to produce the same acceptable occlusion and facial esthetics as those displayed in the skull.

Some[8] have maintained that angular measurement is superior to linear or actual measurement in the analysis of cephalometric roentgenograms. While this may be true in the appraisal of dentofacial relationships, it is not true in determining the amount of available basal bone for the support of the teeth. If the decision of whether or not to extract is dependent upon the size of the teeth in relation to the available supporting bone, it would seem necessary to determine the size of the teeth and the bone by actual measurement. While certain bone measurements can be made on the usual profile and anteroposterior cephalometric roentgenograms, the distortion produced makes others inaccurate.

A. *B.*

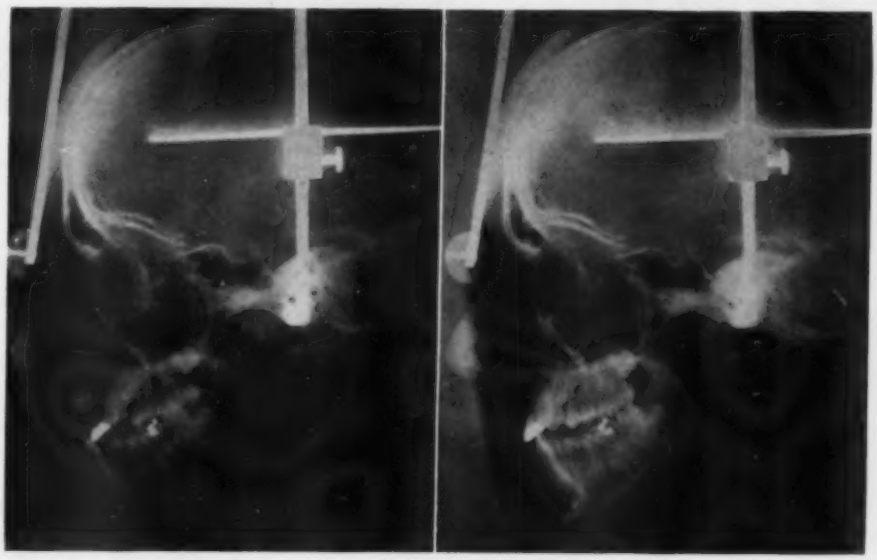
Fig. 7.—Roentgenogram of a patient and photograph of a skull having almost identical abnormal mandibular patterns. The skull (*A*) has an occlusion in acceptable equilibrium while the patient (*B*) has a dental deformity of the Class II, Division 1 (Angle) type. (*A*, from Atkinson, Spencer R.: AM. J. ORTHODONTICS AND ORAL SURG. 25: 1133, 1939.)

Exact measurement of maxillary bone available for the support of the teeth is difficult if not impossible, but that of the mandible might be determined if a suitable method could be evolved. The investigation of such a roentgenographic procedure has just been carried on, as a thesis problem, by one of the Iowa orthodontic graduate students.[9] He used a modified head positioner and cassette holder with the cardboard cassette cut to fit the contour of the neck in order to have the film as close as possible to the base of the mandible while the exposure was made (Fig. 8). Pointers were used to indicate where the plane of the anterior border of the ramus crossed the mandibular base plane.

Theoretically, all of the basal bone anterior to the ramus plane should be available for the support of the teeth, and this method apparently gave an ac-

curate measurement of this bone. Further studies should indicate the size that this bone must be in order to support a set of well-occluded teeth of a given size. This information could then be applied to the analysis of the individual patient.

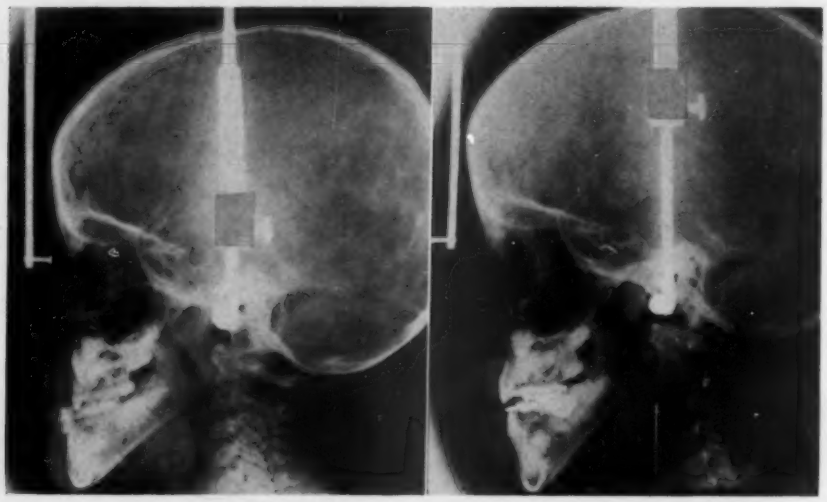
Fig. 8.—Modified head positioner and cassette holder for the production of roentgenograms of the mandible. Close contact of the mandibular base with the film produces a mandibular shadow of almost accurate size.



A. *B.*

Fig. 9.—A 16-year-old boy who habitually closed with the mandible in a forward position, causing the condyle to be too far forward as shown in *A*. *B* shows the condyle in correct relationship to the fossa when biting back as instructed.

It is already known, however, that the profile cephalometric roentgenogram may be used to determine the position of the mandibular condyle (Fig. 9) and the size of the adenoid tissue (Fig. 10), as well as the position during speech of the tongue, soft palate, uvula, and Passavant's ridge (Fig. 11). Some of this latter information may be of special value in the rehabilitation of the cleft palate patient.

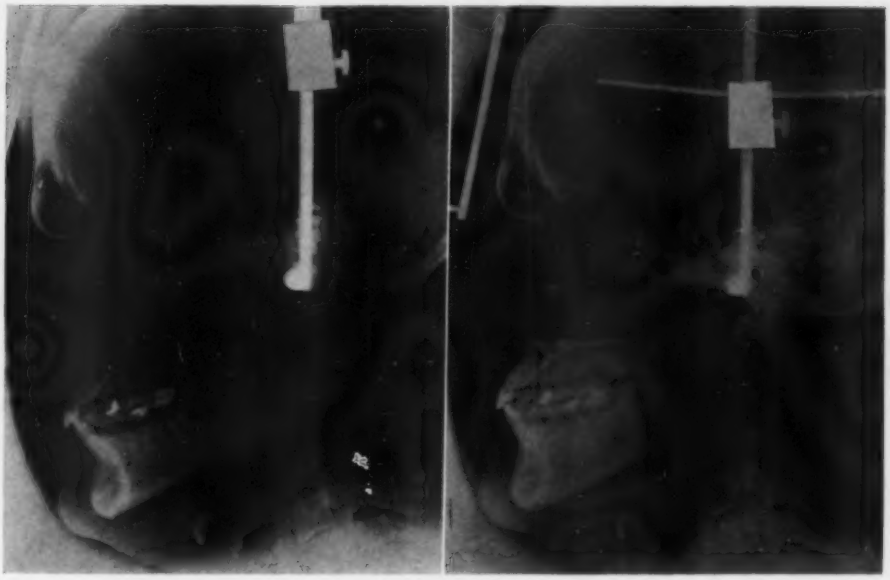


A. *B.*

Fig. 10.—*A* shows a partial closure of the nasopharynx due to an adenoid mass attached to the superoposterior wall. *B* shows a clear nasopharyngeal passage after removal of the adenoid mass.

Fig. 11.—Roentgenogram showing the position of the tongue, soft palate, uvula, and Passavant's ridge during phonation of the sound [i].

Perhaps one of the most important uses of the cephalometric roentgenogram is to show the changes resulting from orthodontic treatment. Some of the hard and soft tissue changes are readily discernible by simple comparison of the before and after treatment roentgenograms (Fig. 12). For more accurate or measurable examination of the changes, the before and after roentgenograms are



A. *B.*

Fig. 12.—*A* shows obvious lack of vertical dimension in the lower third of the face with accompanying deep roll in the lower lip. The maxillary incisors completely covered the mandibular when closed. *B* shows the obvious changes resulting from bite opening. Overbite now correct and roll of lower lip is eliminated with the increase in vertical dimension.

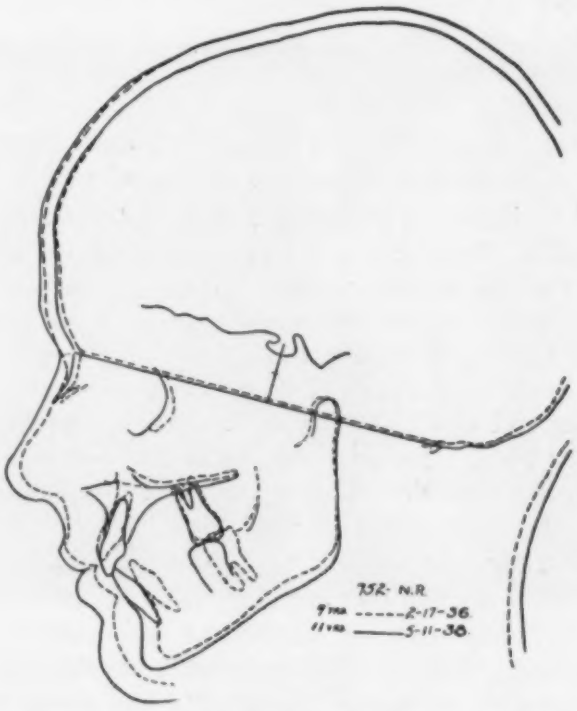


Fig. 13.—Superimposed tracings of roentgenogram of a patient taken before and at the completion of active treatment. The changes, part of which may be due to natural growth, are obvious but may also be measured if desired.

traced on Cellophane with India ink, after which the tracings can be superimposed (Fig. 13).

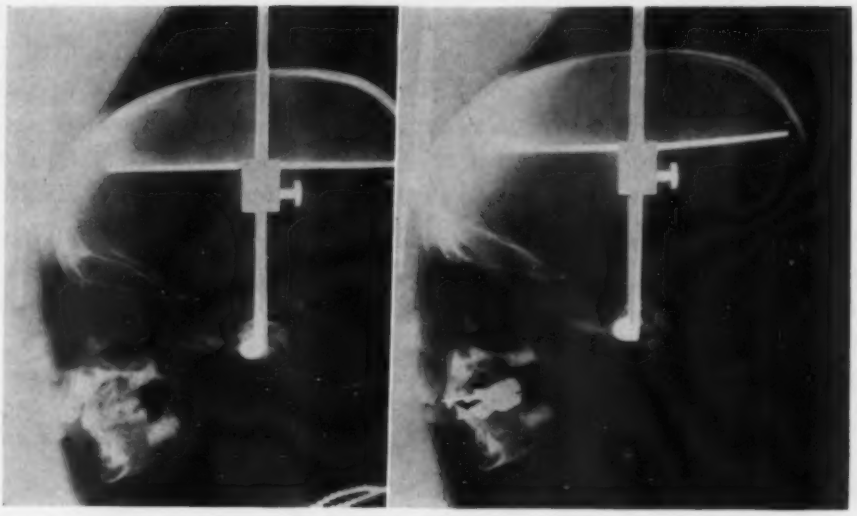
Such analysis of results has not only shown the possibilities of treatment but also indicated its limitations. Some are agreed, for example, that the effects of orthodontic treatment are limited to changes in the dental arches and alveolar bone. If this is true, it is because our treatment methods are not adequate to produce desired changes in the size and shape of basal bone.

There are, however, many examples of distorted basal bone growth, some of which must be due to pressure or tension forces acting to inhibit or misdirect growth rather than to a manifestation of the inherent growth pattern. The elimination of these abnormal pressure or tension forces by early treatment should remove inhibitions to growth and allow it to proceed in the right direction providing, of course, they are the sole cause. Through the use of the cephalometric roentgenogram it is comparatively easy to demonstrate that there is little or no basal bone change resulting from orthodontic treatment after natural growth is over, but it is difficult to prove that beneficial changes during growth are due to treatment.

It is logical to believe, however, that such beneficial changes must occur unless it is false to believe that undesirable forces can deform and that the elimination of such forces can allow normal growth to proceed. Who, for example, would doubt the effect of abnormal forces in the before treatment roentgenograms of the 3- and 4-year-old patients in Figs. 14,*A* and 15,*A*, or who could believe that the elimination of the cause and the establishment of the new dentofacial relationships obtained from early treatment, as illustrated in Figs. 14,*B* and 15,*B*, would not produce a better ultimate result than if treatment were put off until more damage is done and growth is more nearly complete?

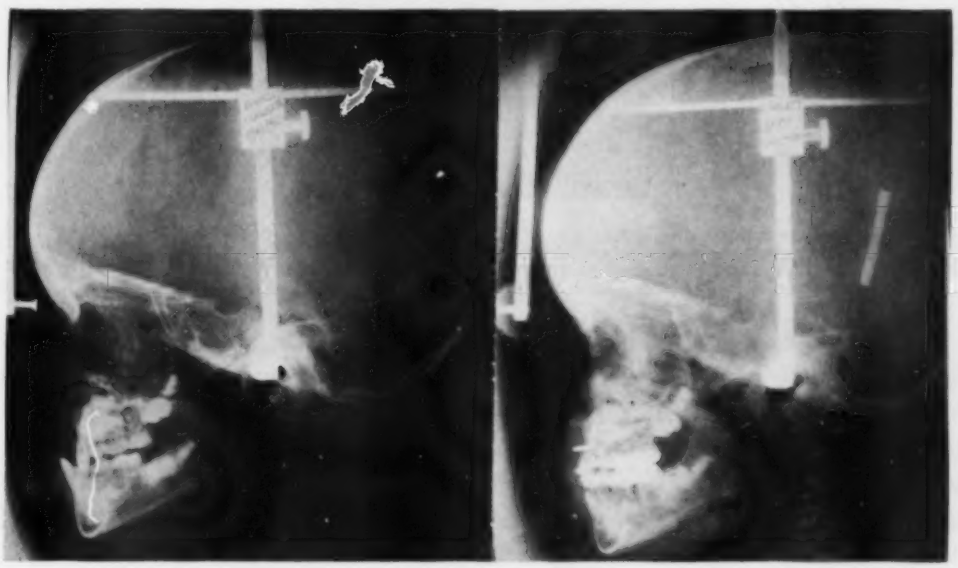
One decided limitation to orthodontic treatment revealed by some cephalometric studies is that the maxillary posterior teeth cannot be moved distally to any extent and that in attempting to do so the mandibular teeth are moved mesially if they are used as the source of resistance or anchorage. This revelation was quite disturbing to those orthodontists who considered the distal movement of the maxillary teeth an essential part of the treatment of Angle Class II dental deformities and who also were determined to prevent mesial movement of the mandibular teeth. One outcome of this was that mandibular anchorage or resistance received added attention resulting in the evolution of Tweed's so-called dynamic anchorage which was accepted by many as the most advantageous intraoral type.

Later, when some decided that maxillary posterior teeth could not be moved distally at all, the preparation of mandibular anchorage for this purpose became less important. However, in mesiodistal movements, especially in extraction cases, dynamic anchorage through the use of tip-back bends is still advocated as a means of increasing the resistance of certain posterior teeth while attempting to move the canines distally and the incisors lingually. All of this anchorage or resistance, however, is confined to the teeth.



A. *B.*

Fig. 14.—The dentofacial deformity in *A* illustrates the local etiologies that may maintain or increase the deformity by misdirecting growth. By the early treatment results illustrated in *B*, the local etiologies misdirecting growth have been eliminated.



A. *B.*

Fig. 15.—The dentofacial deformity in *A* illustrates the local etiologies that may maintain or increase the deformity by misdirecting growth. By the early treatment results illustrated in *B*, the local etiologies misdirecting growth have been eliminated.

The stabilizing plate[10] (Fig. 16), when used as a source of anchorage or resistance has certain distinct advantages over the use of the teeth alone. When constructed properly, the plate combines the teeth and alveolar structures into a unit of resistance and in the maxilla a part of the palate also contributes to this more adequate form of resistance. Thus mandibular anchorage preparation or tip-back bends are not necessary and occipital anchorage can usually be avoided. When extraction is not a part of treatment of Class II cases, the mandibular stabilizing plate may be used to bind the mandible and its dental arch into one unit of resistance. The fact that the stabilizing plate has pins which fit into the usual half-round vertical lingual attachments on the molar bands prevents these teeth from being tipped in any direction while producing action through the labial appliance or while employing intermaxillary elastics.

In extraction cases, if maxillary and mandibular stabilizing plates are in use, all four canines can be carried distally without fear of mesial movement of the posterior segments. What is more, the plate may be trimmed in such a manner as to allow the cuspids to travel distally but prevent rotation of the distal angle lingually, as is so often the case unless rotation ligatures are used.

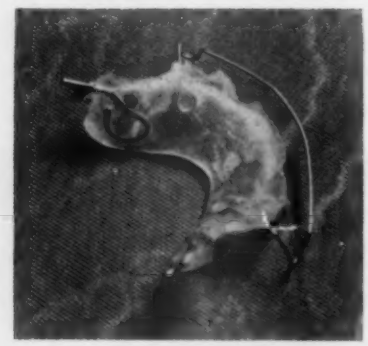


Fig. 16.—The stabilizing plate used as an adjunct to anchorage. This distorted view is to illustrate that the plate is provided with vertical pins which insert into the vertical tubes on the molar bands, which greatly increase the anchorage or resistance of the molars. It is best to have the maxillary plate cover the palate.

A very adequate mechanism for distal movement of the canines is the stabilizing plate plus a rectangular buccal arch segment employing a vertical spring loop, the mesial end of which is inserted into a bracket placed well to the distal of the labial surface of the canine band. After the canines are in the desired position, the plate may be removed from one arch and intermaxillary elastics may be employed to move the incisors of this arch lingually while the plate is worn in the opposing arch to serve as resistance to the elastic force. Of course, if the posterior teeth are to be moved mesially, the plate may be removed at the proper time to allow reciprocal lingual movement of the incisors and mesial movement of the posterior teeth.

In conclusion, it may be said that the cephalometric roentgenogram is the best single aid to orthodontic diagnosis and the best indicator of the results obtained by orthodontic treatment. It is also evident that, due to certain

cephalometric findings, some resistance other than the teeth was needed for anchorage, and the resulting stabilizing plate has made intraoral anchorage adequate for most orthodontic procedures.

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Editorial

Senator Lester Hunt, D.D.S.

A FORMER practicing dentist and talented individual, United States Senator Hunt of Wyoming, is now advising the health professions that obstinate, uncompromising opposition to socialized medical and dental health programs does not answer the problem at this time. Senator Hunt advocates, then, a voluntary federal health insurance program with a $50 and $100 deductible clause as in fire and auto insurance, in order to make insurance plans more wieldly and practical. To say the least, this plan makes more sense than anything put forward up to this time.

To be more specific, Senator Hunt suggests that "A voluntary federal insurance plan could be quickly created in the existing veterans' insurance setup that could cover medical, dental, and surgical needs, nursing care, and hospitalization. The deductible clause would prevent physicians and dentists from being overworked by persons with insignificant phantasmal ills, complaints, and whims."

It was suggested, for instance, "Why should not the health services announce that they will have none of the compulsory plan as now drawn, then collectively and systematically go about the propositions and agree upon a plan that they will follow? That's the way the lobbies that represent other public services do, including labor, manufacturers, and what have you."

Senator Hunt is versatile; he should appear before dental and medical organizations throughout America at this time. He has much information of great advantage to the health services.

He made a profound study of the subject both in Europe and America, and has a constructive message for physicians, dentists, nurses, legislators, and the public. His message is packed with common sense and is markedly void of arm waving and fantastic ideals.

It is interesting that the health services have only one man in the United States Senate who enjoyed actual experience of private practice over a period of years. He knows American politics, and both of these experiences endow him with a strategical knowledge in this socialized picture, enjoyed by no other.

If you like Senator Hunt's plan, write to him and tell him so. That way and that way alone can he know the health services are backing him.

H. C. P.

In Memoriam

PHILIP T. MEANEY

1885-1949

PHILIP T. MEANEY was born March 7, 1885, on a farm near La Center, Washington. In his early years he was a schoolteacher and came to Portland and attended North Pacific College, graduating in 1913. From 1913 to 1919 he was on the staff of the college.

In 1919 he attended Columbia University in New York, taking graduate work in orthodontics. He returned to Portland and practiced orthodontics until his death on Sept. 22, 1949.

He was a member of the local, state, and American Dental Associations, the Pacific Coast Society of Orthodontists, American Association of Orthodontists, certified by the American Board of Orthodontics, and a Fellow of the American College of Dentists.

He was past-president of the Oregon State Dental Association. His fraternity was Psi Omega and his religion was Catholic.

Department of Orthodontic Abstracts and Reviews

Edited by
Dr. J. A. Salzmann, New York City

All communications concerning further information about abstracted material and the acceptance of articles or books for consideration in this department should be addressed to Dr. J. A. Salzmann, 654 Madison Avenue, New York City

Thumb-Sucking: By Maury Massler, D.D.S., M.S., and Arthur W. S. Wood, D.D.S., *J. Dent. Children* **16**: 1-9 (first quarter), 1949.

The orthodontist, the pediatrician, the psychiatrist, the teacher, and the parent are all concerned with the problem of thumb-sucking in the child. There is, however, no unanimity of opinion as to whether thumb-sucking is or is not detrimental. Differences of opinion are inevitably based upon differences in the background of the persons offering the opinions. However, these differences are not necessarily irreconcilable when all the facts are assembled in their logical manner. Much depends upon whether one is concerned with the act of sucking or with the child doing the sucking, i.e., whether we are interested primarily in the effects upon the occlusion of the teeth or the reason why the child sucks his thumb. It is only when the total, integrated picture is studied that we can exercise proper judgment based on facts rather than on conditioned opinions.

THE INFANT (BIRTH TO TWO YEARS)

Normal Sucking.—Sucking, including thumb-sucking, is a part of the normal behavior pattern of the infant. It is a perfectly normal and even desirable action in the infant. Without it, he would be unable to take food and survive. The newborn infant will suck vigorously on almost any object that comes in contact with his lips. This persists as more or less a purely reflex activity for several months (Shaffer, 1936). In the neonatal period the infant may suck for as long as forty-five minutes on a dry nipple until he becomes fatigued, after which he may refuse to take the formula which is offered him. He will suck at his fingers even after feeding if oral gratification has not been satisfied. Sucking also occurs when the fingers reach the mouth in the ordinary course of chance manipulation of the arms. The physiologic pleasurable act of sucking is at its peak during the so-called "hand-to-mouth reaction period" between the fourth and tenth months of life. During this age period everything within the infant's reach is promptly placed into the mouth. The tactile sensation of the lips and mouth facilitates exploration of the environment by the infant. Infants, at this age, pick up an object, look at it, mouth it, look at it again, and then repeat the process. The tendency to mouth everything within reach is replaced by the use of the tactile sensation in the fingers as the hand-to-mouth reaction gradually disappears. Gesell (1943) has noted that the tendency to mouth all objects "is most marked *during the period of teething* and will almost completely disappear between teething periods."

Abnormal Sucking.—While considerable variability in the amount of thumb-sucking exists among infants, all infants suck their thumbs or other fingers frequently. Some infants seem to suck their thumbs excessively during their waking hours. In such cases the excessive sucking may be symptomatic of insufficient emotional gratification in the infant's life.

From birth to the middle of the second year, the infant is considered to be orally erotic. This probably initiates the sucking reflex and may account for the fact that the infant sucks his thumb to obtain one of the few pleasures in life available to him.

During this period of oral eroticism, thumb-sucking does not represent a habit, but can almost be considered a reflex. Toward the middle of the second year the young child transfers to an anal eroticism. This is a normal stage in the process of maturation and it is only when such transfer occurs that the child can be toilet trained. A child still clinging to his thumb is usually difficult to toilet train. At about 3 years of age the normal child transfers to a genital eroticism and the thumb-sucking lessens considerably and tends to disappear gradually.

Effects on the Dentition.—In the infant with no teeth yet erupted there are no ill effects from thumb-sucking. There is also no effect on the primary dentition in the *average* child.

However, if the thumb-sucking is *continuous and intense* during the second year of life when the primary teeth are erupting, the act may displace the upper anterior teeth labially. Such displacement is not as serious as displacement of the permanent incisors, since as soon as the thumb is taken out of the oral economy, the normal action of the labial musculature is restored and will move the displaced primary teeth to their normal position (Lewis, 1930). If the spontaneous correction does not occur after the thumb-sucking ceases, the labial musculature may be abnormal in size or function.

Treatment.—Thumb-sucking during infancy is not the concern of the dentist and should be of no concern to the parent if no physical effect is produced on the teeth. When sucking is abnormally vigorous, that is, vigorous enough to displace the teeth, the problem is the concern of the pediatrician who interprets this act as a symptom of (a) insufficient feeding, (b) inadequate love for the child, or (c) bored, unhappy, or overfatigued child.

In general, mechanical restraints such as elbow splints, metal mitts, or thumb guards are to be condemned. Their use may *aggravate* rather than relieve the emotional aspects responsible for the thumb-sucking. No attempt should be made to cure the habit in a malnourished or sick infant or child who may obtain significant emotional gratification from it. Frequently, the only treatment necessary to cure vigorous thumb-sucking in an infant is a little more cuddling and playing with the child and simple instruction to the mother in the technique of feeding the infant. Cuddling the young child also serves to allay many of the parental anxieties generally, and those related to the thumb-sucking specifically.

THE PRE-SCHOOL CHILD (TWO TO FIVE YEARS)

Normal and Abnormal Sucking.—As the infant grows and matures into a child the tendency to suck the thumb lessens. It is normal for the pre-school child still to suck his thumb occasionally. During this age period, sucking may often be observed in perfectly normal children in various situations. Many pre-school children suck their thumbs when fatigued and on the verge of going to sleep.

At 2½ to 3 years the child begins to assert his independence and attempt to wean himself from his mother. Tension and frustrations inevitably occur. An occasional short-lived sucking episode is therefore common.

If thumb-sucking continues after the third year in a *vigorous* manner, it is a symptom of emotional immaturity or a strong regressive tendency. It may occur in the introverted child who has pressure put on him by the mother and in the extroverted child who shows active resistance.

The line of demarcation between normal and abnormal thumb-sucking is still vague and ill-defined at this age. In general, occasional sucking under the situations mentioned should give no concern to the parent or doctor. However, if the act is very vigorous, or continuous through the day, it is usually a symptom of emotional maladjustment or rejection.

Effects on the Dentition.—When thumb-sucking is continuous and intense, temporary malposition of the primary teeth may result. If the cause can be discovered and the thumb-sucking ceases early (before the sixth year), the dental deformity will be remoulded and corrected in about 75 per cent of cases (Sillman, 1942). Lewis (1930) has shown that, in most cases, if sucking ceases before the eruption of permanent teeth the deformity in the primary arch will spontaneously correct itself. He believes that thumb-sucking in the early years produces no lasting or serious deformities. If the child has a normal musculature, its action on the teeth will correct the deformity produced by the sucking habit. If the child has an abnormal musculature, it will have no action on the teeth and no correction of the deformity will be produced. In such cases, malocclusion will result even in the absence of thumb-sucking. The abnormal musculature is the causative factor in such cases; thumb-sucking merely precipitates and aggravates the malocclusion.

Treatment.—When thumb-sucking continues beyond infancy, we must regard the act as a symptom of some psychological difficulty and treat the cause rather than "break the habit."

In the pre-school child, thumb-sucking which is practiced only before going to bed may be disregarded. It is a benign activity and attempts at correction are generally more harmful than the act itself. If, however, it is frequently indulged in during the waking hours, it means that the child is overfatigued, bored, or unhappy, and an investigation of the unsuitable factors in his environment should be undertaken and corrective measures attempted. Overfatigue should be avoided. A child should have ample play facilities and an adequate amount of self-expression. Excessive criticism and overcorrection should be avoided. The treatment therefore is—*find the cause* and correct it.

THE SCHOOL CHILD (SIX TO TWELVE YEARS)

Thumb-sucking in children above the age of 5 or 6 is not to be viewed as casually as in younger children. The symptom is usually a manifestation of a general emotional and social immaturity which, unless corrected, may lead to a serious and lasting personality disorder.

Most thumb-suckers at this age are teased by their playmates and are frequently regarded as "sissies." The child's social development becomes retarded. The attention of the child then becomes more and more centered on the sucking. Often he cannot stop no matter how hard he tries, consciously, because of underlying factors. The symptom of thumb-sucking is usually only one of a group of traits indicating a disturbance in emotional balance or maturity.

Effects on the Mixed Dentition.—The effects of thumb-sucking on the dentition are also not to be viewed as casually as in younger children. If the act is continued after 6 years of age, it may result in a serious deformity. This is due to the fact that the incisors are newly erupted and the entire anterior segment is easily displaced. In such cases, although the thumb-sucking is only a symptom of a more serious disturbance in the child, thumb-sucking should be treated lest the facial deformity which results become permanent, and lead to more serious emotional disturbances.

TYPES OF THUMB-SUCKING

Whether thumb-sucking per se is the etiologic factor in cases of Class II malocclusion, or whether it is the precipitating factor in cases with a *tendency*

to Class II malocclusion, has not yet been scientifically determined. Nonetheless, *it is always a contributory factor.* The actual mechanical forces involved in thumb-sucking are described by Swinehart (1938) as:

1. The passive force of the thumb against the arch.
2. The abnormal contraction of the cheeks against the side of the arch by the sucking action.
3. The abnormal muscular pressure of the thumb against the palate.

When the thumb is held so that the pressure is exerted on the upper incisors in an upward and outward direction a protrusion of the maxillary incisors is produced. In some cases the hand is allowed to drop in such a position as to cause a prying action on the teeth. Not only are maxillary incisors carried forward by the thumb, but also the alveolar process is molded into an abnormal form. The "fulcrum" of this lever action is where the back of the thumb rests on the incisal edge of the mandibular incisors. A heavy callus is sometimes evident on the thumb at this point. Pressure is exerted in a backward direction and, according to some orthodontists, the mandible can become locked in distal occlusion. The abnormal pressure of the cheek muscles, particularly the buccinator, against the posterior arch causes a narrowing of the arch.

The importance of thumb-sucking as a factor in the production of malocclusion has been so greatly emphasized in the past that mothers have overreacted to the act in almost a violent manner. Without attempting to minimize its importance in the production of malocclusion in the school age child (for we certainly feel that at this age it *is* important), it is nonetheless too true that the emphasis upon the malocclusion has tended to obscure the importance of the act as a *symptom of emotional disturbance.* A greater emphasis on the *child* rather than on the act will correct this situation.

The parental attitude toward the habit should be examined and discussed. The psychological environment of the child should be investigated. The treatment of thumb-sucking is an individual problem. And, very frequently, it is necessary to educate the mother first of all.

It cannot be stated too strongly that one must avoid a critical and shaming attitude toward the child, since this may cause a loss of confidence which is difficult to restore. The mother, out of a false sense of shame, is usually the worst offender in this respect. The more social the mother and the prettier the child, the more severe the criticism for thumb-sucking.

The dentist should never offend the child in this manner. Explanation to the mother and correction of her nagging very frequently solve the problem of thumb-sucking. Once the mother realizes that she is expecting too much of the child and that the child is reacting to this demand by a regression to the infantile act of thumb-sucking, one has accomplished two objectives—helped make a better parent and corrected the thumb-sucking child.

In treating the symptoms of thumb-sucking in the grade school child, there appears to be general agreement that intelligent understanding of the reason for the act must precede any attempt to correct it. Punishment, either real or implied, should be avoided since the child may become more resistant and tend to "fix" the habit. Nothing will disturb a child more than making him feel that he is being punished for something over which he has no control. What he needs is help, not in a maudlin fashion, but in an understanding, professional manner. To the properly trained pedodontist, thumb-sucking gadgets or devices are used only as therapeutic *aids,* never as corrective (i.e., punishing) devices.

Any therapeutic aid, no matter what type, should *never* be used unless the child actually requests it! No device should be used as "punishment." The device should be intriguing to the child. This throws the burden of intelligent

understanding upon the dentist since (1) he must win the confidence of the child, (2) he must approach the subject of treatment not as did the parent, with shame and condemnation, but with clear explanations, and thus win the child to wanting the appliance placed.

Only when the foregoing principles have been carefully observed and an interview with the parent has successfully orientated and won the cooperation of the parent as well as the child may the doctor even *consider* the use of appliances.

There is no device which will stop the thumb-sucking *if the child resents it and does not want it.* All practitioners have seen children who will suck on fingers painted with tincture of bitter aloes until a diarrhea develops; overcome the handicap of a mitt and even bend the spikes attached to bands cemented upon the incisors.

The pedodontist needs only to observe one basic rule: *the device must never be used as punishment.* This means that the appliance may not be used until the child is orientated and actually wants it, or he will destroy or otherwise overcome the gadget or even transfer the habit to some other act. Habits cannot be "broken"—they can only be transferred.

A child who is properly orientated by a well-trained pedodontist needs only a gentle reminder until he finds emotional release in some other activity such as playing ball or skating.

SUMMARY AND CONCLUSIONS

1. Thumb-sucking may be an etiological or contributory factor in the production of malocclusion.

2. Sucking of the thumb or fingers is normal in the infant and the habit is usually lost by the end of the second year of age.

3. If thumb-sucking is continued beyond the second year it is indicative of some disturbance in the emotional life of the child. The exact causes of thumb-sucking are often difficult to discover but appear to be associated most frequently with parental rejection or demands.

4. Malocclusion of the primary dentition caused by thumb-sucking will usually correct itself after the thumb-sucking ceases if the normal function of the tongue and lips exists. If normal function does not exist, in all probability the malocclusion will persist. In any case, treatment should consist in discovering the *cause* of the thumb-sucking and correcting it. Orthodontic intervention for this purpose is therefore rarely indicated during the primary dentition (ages 2 to 6 years).

5. On the other hand, malocclusions of the mixed or permanent dentitions (after the age of 7 years) caused by thumb-sucking are usually permanent and are not self-corrective. Orthodontic intervention for the thumb-sucker is therefore usually recommended, even when the cause cannot be removed.

6. Treatment of thumb-sucking should be directed primarily toward the discovery and elimination of the basic emotional factors causing the act. "Breaking the habit" is never indicated unless a dental deformity actually exists. *If dental deformity does exist,* it is necessary to *transfer* the act of thumb-sucking to some other less noxious form of activity such as carving and drawing.

7. Devices designed to "break" the habit and which are presented to the child as a form of punishment are to be condemned. Such devices seldom succeed. Devices which are designed to *help the child transfer* the habit, and which are acceptable to him, usually succeed.

8. The treatment of thumb-sucking is an individual problem. To properly motivate the child to correct the habit requires ingenuity, wisdom, sympathy, and understanding.

J. A. S.

The Doctor and the Difficult Child: By William Moodie, M.D., F.R.C.P., D.P.M. New York, The Commonwealth Fund, 1947. Pp., 231. Price, $2.00.

Dr. Moodie is director of the London Child's Guidance Clinic. In this book, written for the pediatrician and general practitioner, a sympathetic insight is presented into the point of view of the parent as well as an approach to the understanding of the child.

Physical illness is a possible contributing factor in disturbances of behavior and personality. Among the criteria for recognizing the nervous child are listed the following: The child is thin and looks ill nourished. The color, posture, and stance are bad. There are often fine tremors of the hands, and muscular coordination is weak making for poor handwriting and failure in games. Squints, tics, and other involuntary movements commonly occur.

Restless movements are usually a sign of nervous disturbance. Such children cannot sit still. They play with their fingers, pick their skin, scratch themselves, and behave generally as if they are ill at ease. The nervous child is anxious and high-strung.

Thumb-sucking and nose-picking are often simply tics which disappear when the child's mind is fully occupied elsewhere. Habit spasms are incoordinate movements and do not arise from any purposeful action. Nail-biting is associated with nervous tension. The author warns against the use of direct restraint.

To the practitioner whose patients are largely children, this book presents an opportunity to obtain a keener insight into the understanding of the child. In this second edition, Dr. Moodie presents a concise treatise without going too far afield. Parents occupied with the problems of their own child, as well as those who deal with the children of others, will find this a valuable text.

J. A. S.

News and Notes

American Association of Orthodontists

Announcement has been received that May 8 to 11, 1950, have been officially designated as the dates for the Forty-Sixth Annual Meeting of the American Association of Orthodontists.

The meetings will be held at the spacious Edgewater Beach Hotel, Chicago, Illinois. Dr. Max E. Ernst, President, Dr. Charles R. Baker, Chairman of the Program Committee, and Dr. G. Hewitt Williams, Chairman of the Local Arrangements Committee, state that plans for the program and entertainment are practically complete.

The scientific program will begin Monday afternoon, May 8, and continue until Thursday afternoon. There will be excellent papers presented by capable speakers who will present their views on current othodontic problems. Also one-half day will be devoted to general clinics, and one-half day to lecture clinics.

No provision has been made for golf or other sports, but there will be a stag dinner Monday evening, an international luncheon Tuesday, and a reception and banquet Wednesday evening. The Arrangements Committee is preparing an interesting program of events for the visiting ladies.

We expect to have the complete program announced in the next issue of the JOURNAL. Please make your hotel reservations early.

The following is a list of the officers and committees of the American Association of Orthodontists for 1950:

Max E. Ernst, President, 1250 Lowry Medical Arts Building, St. Paul 2, Minnesota.
Joseph E. Johnson, President-Elect, 782 Starks Building, Louisville, Kentucky.
Sergio Giquel, Vice-President, 521 Neptune, Havana, Cuba.
George R. Moore, Secretary-Treasurer, 919 Oakland Avenue, Ann Arbor, Michigan.

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James W. Ford, 55 E. Washington Street, Chicago, Illinois.
William A. Murray, 636 Chuch Street, Evanston, Illinois.
Richard A. Smith, 636 Church Street, Evanston, Illinois.

Prize Essay Contest, American Association of Orthodontists

Eligibility.—Any member of the American Association of Orthodontists; any person affiliated with a recognized institution in the field of dentistry as a teacher, researcher, undergraduate, or graduate student shall be eligible to enter the competition.

Character of Essay.—Each essay submitted must represent an original investigation and contain some new significant material of value to the art or science of orthodontics.

Prize.—A cash prize of $500 is offered for the essay judged to be the winner. The committee, however, reserves the right to omit the award if in its judgment none of the entries is considered to be worthy. Honorable mention will be awarded to those authors taking second and third places. The first three papers will become the property of the American Association of Orthodontists and will be published. All other essays will be returned.

Specifications.—All essays must be typewritten on 8½ by 11 inch white paper, double-spaced, with 1 inch margins, and composed in good English. Three copies of each paper complete with illustrations, bibliography, tables, and charts must be submitted. The name and address of the author must not appear in the essay. For purposes of identification, the author's name together with a brief biographical sketch which sets forth his or her dental and/or orthodontic training, present activity, and status (practitioner, teacher, student, research worker) should be typed on a separate sheet of paper and enclosed in a sealed envelope. The envelope should carry the title of the essay.

Presentation.—The author of the winning essay will be invited to present it at the meeting of the American Association of Orthodontists to be held in Chicago, Illinois, May 8 to May 11, 1950.

Final Submission Date.—No essay will be considered for this competition unless received in triplicate by the chairman of the research committee on or before March 15, 1950.

Allan G. Brodie, Chairman Research Committee,
American Association of Orthodontists,
30 North Michigan Avenue, Chicago 2, Illinois.

Research Section Meeting of the American Association of Orthodontists

In accordance with the policy of recent years, time will be set aside for research reports at the coming meeting of the American Association of Orthodontists. Any individual desiring to report on a current research problem, completed or in progress, may do so by communicating with Dr. J. A. Salzmann, 654 Madison Avenue, New York, New York.

Each application should be accompanied by the author's name, address, and institution with which he works, if any. An abstract of not more than three hundred words should be forwarded at the same time.

Presentation time will be limited to fifteen minutes.

ALLAN G. BRODIE, Chairman.

American Board of Orthodontics

The 1950 meeting of the American Board of Orthodontics will be held at the Edgewater Beach Hotel, Chicago, Illinois, May 4, 5, 6, and 7. Orthodontists who may desire to be certified by the Board may obtain application blanks from the Secretary, Dr. Stephen C. Hopkins, 1726 Eye Street, N. W., Washington 6, D. C. Applications must be completed not later than March 1, 1950, for consideration at the Chicago meeting.

Northeastern Society of Orthodontists

The annual meeting of the Northeastern Society of Orthodontists will be held at the Copley-Plaza Hotel, Boston, Massachusetts, on March 6 and 7, 1950; its fall meeting will be held at the Shoreham Hotel, Washington, D. C., Nov. 6 and 7, 1950.

Pacific Coast Society of Orthodontists

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A. E. Stoller, Term expires Dec. 31, 1951, Seattle, Washington.
Wm. Walsh, Term expired Dec. 31, 1949, Stockton, California.

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Southern Section: Chairman, Harry Faulkner. Secretary-Treasurer, John Hopkins.

The *Northern Section* of the Pacific Coast Society of Orthodontists held its meeting Jan. 15 and 16, 1950. The clinician was Dr. Arne Bjork of Sweden.

The *Central Section* of the Pacific Coast Society of Orthodontists held its quarterly meeting at the Alexander Hamilton Hotel, Tuesday, Dec. 13, 1949.

Members present were: Ray Lussier, Frederick West, Lyle Russell, Roy Cowden, Ernest Johnson, George Hahn, Earl Lussier, Charles Konigsberg, Jack McMath, Murray Ballard, James Seaman, Arthur Skaife, Seymour Gray, V. L. Hunt, Kester Diment, Fred Epley, A. J. Corbett, Walter Straub, William Sheffer, Carl Showalter, Fred Havrilla, Arnold Wieser, Howard Jan, Linus Huberty, Reuben Blake, Allen Scott.

Guests present were: Charles Lipp, Phil Konigsberg, Haig Albarian, Glen Foor, J. H. Sibley, J. Rodney Mathews, Bob Campbell, Al Cass, Eugene West, Thomas Lewis, Peter Pricard, D. V. Anderson, John Adams, Wilfred Wong, Lloyd M. Cox, and F. W. Heitman, Jr.

The meeting was called to order by Chairman Lyle Russell at 8:15. The reading of the minutes was dispensed with due to their publication.

Ernest Johnson read the program for the "First Annual Meeting of the Children's Health Conference," to be held at the St. Francis Hotel, Monday, Feb. 6, 1950.

The *Southern Section* of the Pacific Coast Society of Orthodontists held its regular quarterly meeting at the Roger Young Auditorium, 935 W. Washington Boulevard, Los Angeles, California, Dec. 9, 1949.

Benjamin Tager, M.D., Assistant Professor of Medicine, University of Southern California, gave a paper and slides entitled, "Body Growth and Development in Relation to Orthodontics."

J. Franklin Maley, D.D.S., M.D., Sc., Past-President of the Los Angeles County Dental Society, who spoke on "The Disintegration of Dentistry."

He discussed forces within and outside of dentistry, but more particularly from within, which are tearing it down. Dr. Maley has information available to him which gave our members food for thought.

Officers elected were:

Harry Faulkner, Chairman.
John Hopkins, Secretary-Treasurer.

The *Central Section* of the Pacific Coast Society of Orthodontists held its meeting in San Francisco during the meeting of the American Dental Association.

Honorary Chairman, Frank M. Casto.
Honorary Vice-Chairmen, M. R. Chipman, Guy S. Millberry, and Harold Noyes.
Executive Committee, Willard Fleming, Ernest Sloman, and Fred West.
Essay Program, Clarence Carey, Herbert Foster, Alton Moore, Richard Riedel, and Wendell Wylie.
Clinic Program, William Elsasser, Elmo Tucker, and Eugene West.
Scientific Exhibits, Hermann Becks.
Motion Picture Program, John Abel.
Chairman, Publicity Committee, R. L. Blake.
General Committee, Ray Curtner, J. Camp Dean, Fred Havrilla, Linus Huberty, Everett Hunt, Vernon Hunt, Ray Lussier, Lyle Russell, Wm. Smith, Walter Straub, and Wm. Walsh.

Thomas P. Hinman Mid-Winter Clinic

The Thirty-seventh Annual Meeting of the Thomas P. Hinman Mid-Winter Clinic will be held at the Municipal Auditorium, Atlanta, Georgia, March 19, 20, 21, and 22, 1950. The general chairman is Dr. Sidney L. Davis, 932 Candler Building, Atlanta, Georgia, exhibit chairman, Dr. J. A. Broach, 1105 Doctors Building, Atlanta, Georgia.

Cuban Association of Orthodontists

Notice of the newly elected officers of the Cuban Association of Orthodontists arrived too late for publication in the January issue of the JOURNAL under "Orthodontic Societies of the World and Their Principal Officers." The listing should appear as follows:

President, Rafael Reineke - - - - - - - - - - - - - Calle A 603, Vedado, Havana
Vice-President, Pablo Vallhonrat - - - - - - - - - - Calle 21 452, Vedado, Havana
Secretary-Treasurer, Federico R. de la Rosa - - - - - - - - San Miguel 409, Havana

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The Johnson Club

The Johnson Alumni Club held its second annual meeting at the Brown Hotel, Louisville, Kentucky, Jan. 23, 24, and 25, 1950, and provided the following program:

In a series of illustrated lectures Dr. Johnson reviewed the many factors enrolled in the diagnosis of cases and the application of the twin arch treatment.

A series of cases reports were reported in the following order:

Twin Arch Variations Effective in Complicated Cleft Palate Cases. Joseph D. Eby, New York, New York.

Closing Spaces Between Central Incisors. Walter R. Bedell, Poughkeepsie, New York.

An Extraction Case Several Years After Treatment. Ashley E. Howes, New Rochelle, New York.

Getting the Most Out of the Twin Arch. Clare K. Madden, Greenwich, Connecticut.

Treatment of Impacted Central Incisor (in Mixed Dentition) Demonstrating Bodily Movement With Twin Arch Mechanism. William F. Ford, Chicago, Illinois.

The Application of the Twin Arch Technique for Congenitally Missing Lateral Incisors. George E. Morgan, Milwaukee, Wisconsin.

A Case Showing the Use of the Cuspid Lever; the Special Cap and Special Mounting of Lock. Frank O. Clifford, Kokomo, Indiana.

Treatment of a Class I case, With Special Emphasis on Error in Diagnosis and Root Resorption. M. Duke Edwards, Montgomery, Alabama.

Making Retainers. Andrew F. Jackson, Philadelphia, Pennsylvania.

The Cuspid Lever; Special Mounting Lock on Band; New Special Cap for Johnson Lock. Frank O. Clifford, Kokomo, Indiana.

Special Arch Crimping Pliers, J. G. Brittain, Harlingen, Texas.

Figure "7" Lower Lingual Recurrent Finger Springs. Martin J. Mayeau, Wheaton, Illinois.

An Auxiliary to Adapt the Twin Arch Wire for Use of Occipital Anchorage. Faustin N. Weber, Memphis, Tennessee.

The Third Molar Regions in Facial Analysis. J. William Adams, Indianapolis, Indiana.

Subject to be announced. George H. Gowen, Toledo, Ohio.

Swivel Intermaxillary Hooks; Occipital Anchorage Gearing. A. Wolfson, Newark, New Jersey.

Adjustable Molar Tube. Walter J. Furie, Long Beach, California.

The Russell Molar Lock, Lingual Application in Conjunction With Twin Arch Technique. S. J. Hecht, Red Bank, New Jersey.

Auxiliary Pliers. Edward W. Peaslee, Augusta, Maine.

Subject to be announced. C. H. Vath, Cleveland, Ohio.

Impacted Canines Treated Using the Johnson Twin-Wire Mechanism. John W. Richmond, Kansas City, Kansas.

Opening Bites in Neutroclusion; Slater Bite Opener. William A. Parker, Knoxville, Tennessee.

Photographic Aids for Better Clinical Photography. Harry B. Wright, Philadelphia, Pennsylvania.

Anterior Band Technique. Leigh C. Fairbank, Washington, D. C.

Sectional Lingual Wires of Steel Incorporating Freil Springs. Alexis W. Eastwood, London, England.

Construction of Individual Impression Trays. Joseph D. Eby, New York, New York.
Special Vise for Drawing Twin Arches. William A. Buhner, Daytona Beach, Florida.
Other clinics m[illegible] be added.

A banquet was [illegible]iven on the night of January 24 in honor of Dr. Jos. F. Johnson.

Civil Defense Organization Urged by Army Doctor

"Every State and community can and should proceed immediately with its own preparations for meeting disasters in a realistic and reasonable manner," Colonel William L. Wilson, MC, Special Assistant to the Surgeon General of the Army for Civil Health Affairs, today told the radiological defense class of the University of California School of Public Health, Berkeley, California. In addition to the class of selected officers of the armed services and Public Health Service, the audience included members of the school faculty, invited guests from the armed services, and Mr. Burton Washburn, secretary of the California Disaster Council.

Defining disaster as including catastrophes of both peacetime and war, Colonel Wilson emphasized that "although damaging and destructive forces have been improved by man, at the same time we have learned how to apply our knowledge and means in mass countermeasures." Warning against allowing "fancy names, dire predictions, and scare stories" to undermine our faith in our scientific and public health resources, Colonel Wilson said, "Biological warfare on the grand scale has been going on for centuries in the host/parasite relationships of importance to man and man has never lost the battle. Foreseeable atomic warfare makes little, if any, qualitative change in previously known health service requirements. The change is primarily one of magnitude." The Army doctor expressed complete confidence in our ability to minimize health damages from modern armed attack, even though certain severe hazards could not be avoided.

Colonel Wilson insisted that local disaster plans should be completely controlled and operated by civilians, and that temporary military aid might never need be requested by civil authority and then only in the event that civil efforts should be overwhelmed. Even in this event, he said, civil administration must be re-established at the earliest possible time to prevent diversion of military medical resources from primary missions.

Among the steps that should be taken to effect community organization for disaster relief, Colonel Wilson listed: fixing of exact responsibilities for necessary activities, by legislative or administrative act; indexing of all responsibilities and authorities; and the provision of "sufficient means," including personnel, drugs and supplies and sanitation aids. However, "large reserve stocks of equipment or supplies which could not be readily and economically applied to usual, normal consumption, or later national disaster relief operations, would be justified," he said. "On the other hand, full knowledge of available resources and means must be maintained."

Colonel Wilson illustrated his talk with a series of slides showing the various phases and methods of possible community and intercommunity activities in the event of either natural or man-made disaster, with particular emphasis on public health and therapeutic-medical services which are available. "The necessary groundwork involved would be essential regardless of future national schemes," he said, and therefore should be started and rapidly improved in spite of the absence now of a national disaster plan.

Survey of Dentists' Incomes

The net incomes of the 78,000 dentists in the United States who were engaged in civilian practice in 1948 averaged $6,912, the Office of Business Economics, United States Department of Commerce, revealed today in announcing the results of a recent survey. Dentists' dollar earnings that year were 60 per cent above 1929, and 80 per cent above the prewar high attained in 1941.

The findings are based on a nationwide mail survey conducted by the Office of Business Economics in 1949, and represent the first information available on dentists' incomes for the nation as a whole since 1941. The results of the survey are reported in an article in the January issue of the *Survey of Current Business*, OBE's official magazine.

Independent dentists had an average net income of $7,047, compared with $5,358 for salaried dentists, the study shows. About 93 per cent of all civilian dentists derived most of their professional income from independent practice, while only 8 per cent were salaried.

Slightly more than 2 out of every 10 dentists earned less than $3,000. A similar proportion reported net incomes in excess of $10,000. The remainder, or nearly 6 out of 10 dentists, earned between $3,000 and $10,000. During 1941 by contrast, 4 out of every 10 dentists earned less than $3,000, and only 3 out of every 100 earned more than $10,000. Over the intervening period, of course, the purchasing power of these incomes—like all other incomes—was cut sharply by the inflation of prices.

Significant income differentials were found to exist among the dentists practicing in the various geographic regions of the country, and the relative positions held by the regions in 1948 indicated striking shifts since 1941. In addition, the regional ranking of average dental income was found to differ markedly from the average income of the general population in the region. The study indicates that the geographic distribution of dentists is overconcentrated compared with the economic demand for dental services. It should be kept in mind, however, that actual dental needs may be far in excess of ability to pay for dental services.

As has been the case for at least the past decade, dentists in the Far Western region of the country (dominated by California) had a higher average net income in 1948 than those in any other section of the country. In 1948 the Southwest was second; the Southeast, third; the Northwest, fourth; the Central States, fifth; the Middle East, sixth; and New England, seventh. This is in sharp contrast to 1941, when the comparable ranking was: Far West, first; New England, second; Middle East, third; Southeast, fourth; Southwest, fifth; Central States, sixth; and Northwest, seventh.

Notes of Interest

Paul I. Bauman, D.D.S., announces the exclusive practice of orthodontics at 1801 Eye Street, N. W., Washington, D. C.

Samuel E. Buxton, Jr., D.D.S., M.S., announces the opening of an office at 613-14 Medical Arts Building, Norfolk, Virginia, practice limited to orthodontics, hours Tuesday and Friday by appointment, phone 24409.

Dr. Moses A. Schwartz announces the opening of an office for the exclusive practice of orthodontics at 42 North Main Street, South Norwalk, Connecticut.

Margaret Toalson, D.D.S., announces the transfer of her office to Suite 105, Beaumont Medical Building, St. Louis, Missouri, practice limited to dentistry for children.

Leon Young, D.D.S., announces the opening of his offices at 636 Beacon Street, Boston, Massachusetts, practice limited to orthodontics and dentistry for children, office hours by appointment, telephone COmmonwealth 6-3770.

Erratum

In the list of "Orthodontic Societies of the World and Their Principal Officers" appearing in the January issue, the officers listed under the Orthodontic Society of South America are the new officers for the Orthodontic Society of Chile. The officers under that society are past officers. The listing should appear as follows:

Sociedad de Ortodoncia de Chile

President, Arturo Toriello A. - - - - - - - - - - - Londres No. 63, Santiago, Chile
Vice-President, Germán Moreno J. - - - - - - - - - Phillips No. 56, Santiago, Chile
Secretary, Eduardo Manns Sch. - - - - - - - - - - Huerfanos No. 979, Santiago, Chile
Treasurer, Pedro Gandulfo G. - - - - - - - - - - - Londres No. 63, Santiago, Chile
Librarian, Sergio Silva C. - - - - - - - - - - - - Moneda 1035, Santiago, Chile

OFFICERS OF ORTHODONTIC SOCIETIES

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American Association of Orthodontists

President, Max E. Ernst - - - - - - - 1250 Lowry Medical Arts Bldg., St. Paul, Minn.
President-Elect, Joseph E. Johnson - - - - - - - - - - - Starks Bldg., Louisville, Ky.
Vice-President, Sergio Giquel - - - - - - - - - - - - - 521 Neptune, Havana, Cuba
Secretary-Treasurer, George R. Moore - - - - - 919 Oakland Ave., Ann Arbor, Mich.

Central Section of the American Association of Orthodontists

President, L. B. Higley - - - - - - - - - - - - - - 705 Summit St., Iowa City, Iowa
Secretary-Treasurer, Earl E. Shepard - - - - - - - - 4500 Olive St., St. Louis, Mo.

Great Lakes Society of Orthodontists

President, C. Edward Martinek - - - - - - - - - - - - Fisher Bldg., Detroit, Mich.
Secretary-Treasurer, Scott T. Holmes, 509 Hackley Union National Bank Bldg., Muskegon, Mich.

Northeastern Society of Orthodontists

President, Robert H. W. Strang - - - - - - - - - - 886 Main St., Bridgeport, Conn.
Secretary-Treasurer, Oscar Jacobson - - - - - - - - 35 W. 81st St., New York, N. Y.

Pacific Coast Society of Orthodontists

President, C. F. S. Dillon - - - - - - - - - - - - - Taft Bldg., Hollywood, Calif.
Secretary-Treasurer, Frederick T. West - - - - - - 870 Market St., San Francisco, Calif.

Rocky Mountain Society of Orthodontists

President, Elmer S. Linderholm - - - - - - - - - 1558 Humboldt St., Denver, Colo.
Vice-President, Ernest T. Klein - - - - - - - - - - 632 Republic Bldg., Denver, Colo.
Secretary-Treasurer, Curtis E. Burson - - - - - - - 1232 Republic Bldg., Denver, Colo.

Southern Society of Orthodontists

President, E. C. Lunsford - - - - - - - - - - - - 2742 Biscayne Blvd., Miami, Fla.
Secretary-Treasurer, Frank P. Bowyer - - - - - - Medical Arts Bldg., Knoxville, Tenn.

Southwestern Society of Orthodontists

President, J. S. Cunningham - - - - - - - - - - - - 3718 Travis St, Houston, Texas
Secretary-Treasurer, Marion A. Flesher - - - Medical Arts Bldg., Oklahoma City, Okla.

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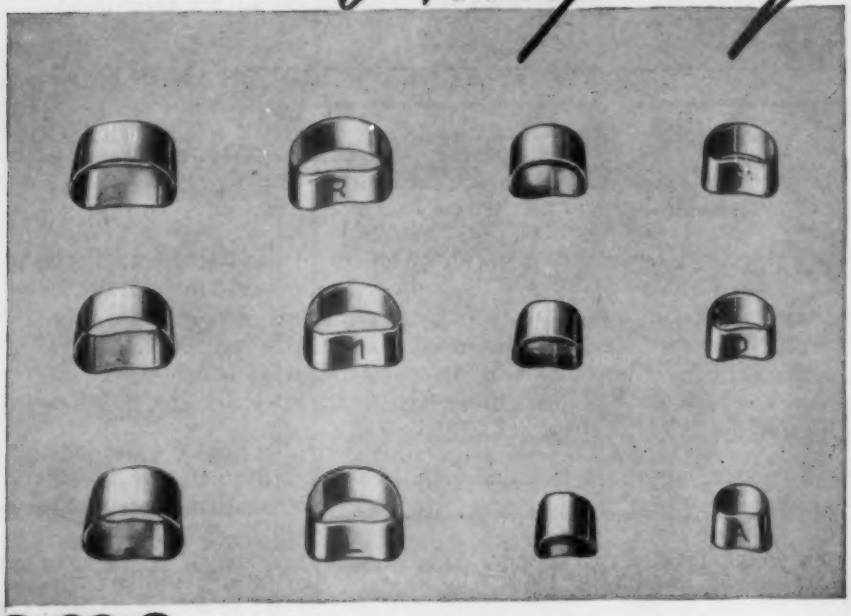

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